DOCUMENT RESUME

ED 032 388 24 VT 006 600

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Personal and Social Background Characteristics of Entering Technician Education Students at Four Post-High School Institutions.

Oklahoma State Univ., Stillwater. Research Foundation.

Spons Agency-Office of Education (DHEW), Washington, D.C. Bureau of Research.

Bureau No-BR-7-G-014

Pub Date Jan 68

Grant-OEG-1-7-070017-5144

Note-139p.

Available from-University Microfilms, Inc., 300 North Zeeb Road, Ann Arbor, Michigan 48106

EDRS Price MF-$0.75 HC-$7.05

Descriptors-*Academic Aptitude, Area Vocational Schools, Guidance Services, Junior Colleges, Personal Interests, *Post Secondary Education, *Socioeconomic Background, Socioeconomic Status, *Student Characteristics, *Technical Education, Technical Institutes

Identifiers-Nelson Denny Reading Test, *Oklahoma, Technical Scholastic Test

To identify differences and similarities among entering technician education students at four post-high school institutions, data were collected on personal and social background characteristics, socioeconomic background, and scholastic aptitude from 724 students. Researchers used two standardized instruments, the Nelson-Denny Reading Test and the Technical Scholastic Test, and a questionnaire designed to obtain personel-social data for use in determining the socioeconomic background of each student. The four institutions selected for this study were: (1) a public-supported residential junior college, (2) a public-supported residential vocational technical school, (3) a public-supported non-residential technical institute located in a metropolitan area, and (4) a public-supported technical institute located on a state university campus. Conclusions based on the findings of this study include: (1) Technician education students make choices with only limited knowledge of available programs and institutions, (2) Technician education students tend to express unrealistic educational objectives, (3) Technician students had limited contact with high school counselors, (4) Reading skills of technician education students tend to be lower than norms for grade 13 students. (CH)

ED032388

FINAL REPORT
Project No. 7-G-017 -24
Grant No. OEG-1-7-070017-5144

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January 1968

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Research

VT006600

BR-7-G-017
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Donald S. Phillips

The Oklahoma State University
Research Foundation

Stillwater, Oklahoma

January 1968

The research reported herein was performed pursuant to a grant with the Office of Education, U.S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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PREFACE

Technological developments of the last two decades have created thousands of semi-professional technical jobs which require specialized training prior to employment. Increasingly the responsibility for planning and implementing pre-employment technician education programs has become a function of public education. Effective planning of technician education programs has been hampered by a lack of descriptive information relative to students served by technician education programs at different types of post-high school institutions. The purpose of this study was to identify differences and similarities among entering technician education students at four post-high school institutions.

Sincere gratitude is expressed to the members of the author's graduate advisory committee for their valuable assistance, guidance, and contributions to this study: Drs. Maurice W. Roney, Chairman, William W. Rambo, and Richard P. Jungers. Indebtedness is acknowledged to Professors Donald W. Brown and Philip Chandler, and Dean Wayne W. Miller, Oklahoma State University, and Joe W. Ables of Northeastern Oklahoma Agricultural and Mechanical College, for their assistance in obtaining the data used in the study.

Research reported in this study was conducted pursuant to a small grant from the United States Office of Education under the provisions of Public Law 83-531, as amended by Title IV, Section 2, Public Law 89-10 (Grant No. OEG-1-7-070017-5144).

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CHAPTER I

INTRODUCTION

Rapid and significant technological developments of the last two decades have caused major changes in the composition of the nation's labor force. In general, the changes have been such that the level of education and training required for successful participation in the world of work has increased. Today's technological economy offers limited opportunities to the untrained, under-educated, would-be worker.

One specific result of the many technological developments has been the creation of thousands of jobs at the technician level. Many of these semi-professional technical jobs require the completion of two years of post-high school technician education prior to employment.

Statement of the Problem

Development of an expanded program of post-high school technician education has been impeded by a lack of information concerning important aspects of this type of education. However, technician education programs have been established in different types of post-high school institutions. Among the types of institutions providing technician education are: junior colleges, vocational technical schools, and technical institutes. Many school administrators responsible for planning and implementing new programs had limited experience in this field of education and often did not understand the unique aspects of technician education. The task of planning and operating technician education programs was made difficult by the lack of information concerning such things as curriculum design, selection of instructional materials and laboratory equipment, program costs, and the type of students to be served.

Simply stated the problem with which this study was concerned was the lack of descriptive information relative to students served by technician education programs at different types of post-high school institutions.

Purpose of the Study

The purpose of this study was to identify differences and similarities among entering technician education students at four post-high school institutions. Considered in this investigation were a number of personal and social background characteristics including scholastic aptitude, socioeconomic background, age, sex, education,and educational expectations.

Need for the Study

The need for this study was generated by the changing status of technician education in the United States. This type of education, born in private schools outside the educational mainstream, has come to be recognized as a significant function of public education in recent years. From its early introduction in this country until recent years, the primary responsibility for technical education has rested with private schools. However, as the demand for technically trained workers has increased, public education has accepted the responsibility for providing technician education. The several federal acts providing funds for post-high school technician education are evidence of public acceptance of responsibility in this area of education. Today technician education programs are found in a variety of public supported institutions: technical institutes, junior and community colleges, four-year colleges and universities, and vocational-technical schools.

Projections of technician employment to the year of 1975 indicate that technician education enrollments must continue to increase if the demand for technicians is to be met. Recent projections by the Bureau of Labor Statistics (1) show the demand for new technicians for the period of 1963-1975 ranging from 892,000 to 1,237,000, depending upon economic conditions during those years. This report also projects the supply of technicians with formal training to range from 475,000 to 1,040,000 during this period. The projections on the supply side are based on the assumption that the output of formal technician training programs will continue to increase at a rate equal to the rate of increase in the early 1960's. The report states (1, p. 81):

> ....if the number of graduates does not increase as greatly as projected in the 'intermediate' or high estimate, the quality of the technician work force might be lowered because of the large number of upgradings required.

As technician education enrollments continue to grow the need for information about students served by these programs is compounded. The pressures of increased enrollments and limited financial resources, coupled with the goal of maximum human resource development, points up the need for effective educational planning. Since, in the final analysis, educational programs must be planned to fit the particular talents and needs of students attracted to a program, educational planning should begin with a consideration of the students to be served (2).

One of the important decisions in life concerns the selection of a job or career (3). What one chooses for his life's work is a decision of lifetime importance. One aspect which must be considered in the process of career choice is the training required for entry into and successful participation in the occupation. For those persons choosing an occupation requiring post-high school education prior to employment in the occupation, an important subsidiary decision involves the choice of an institution for acquiring the needed education. In selecting an educational institution, the prospective student needs accurate information of various kinds. According to Astin (4) information concerning the students attending an institution is of primary importance. Regarding this he states (4, p. 2):

> ....the student choosing a college appears to be least informed about the one aspect of the college--his potential fellow students--that probably will make the greatest difference in his actual college experience.

High school guidance counselors have expressed a need for information concerning post-high school occupational education students. According to Hoyt (5), high school counselors have experienced a great deal of success in assisting the college bound student; however, these counselors have not experienced an equal degree of success in working with students desiring a post-high school occupational education because of the limited availability of information.

The problems of planning an effective system of technician education and of providing accurate information for use by students, parents, and counselors appeared to justify the need for a study specific to the analysis of characteristics of students enrolling in technician education programs at different types of institutions. It was expected that the information provided would be useful to school administrators, students, parents, and counselors. It was, also, expected that this study would provide information which would be useful in the design of additional research in this area.

Scope of the Study

This study was limited to students enrolled in selected technician education programs for the first time during the first semester of the 1967-68 school year. Programs selected for this study were:

a. All programs offered by the two technical institutes operated by a state university.

b. Programs at a state supported junior college which receive financial reimbursement from the Technical Education Division of the State Department of Vocational-Technical Education.

c. Programs at a vocational technical school which receive financial reimbursement from the Technical Education Division of the State Department of Vocational-Technical Education.

Except for three programs in data processing, all programs studied are related to fields of engineering. A description of the institutions and programs is presented in Chapter III.

This study was not designed to examine reasons why a particular institution attracts the students it does. Also, questions concerning what happens to students during and after the training program are beyond the scope of this study.

Assumptions

Design of this study was based upon the assumption that the students entering technician education programs in the fall of 1967 would be similar to the technician education students in future years. The validity of this assumption is supported by the work of Astin (4, p. 51), who cites several studies which show that the characteristics of students at an institution remain stable over a period of years.

An additional assumption of this study was that the students selected for the study gave accurate responses to questions designed to elicit information necessary to the study.

Definition of Terms

Technician Education is a planned sequence of classroom and laboratory experiences at the post-secondary level designed to prepare persons for a cluster of job opportunities in a specialized field of technology. The program of instruction normally includes the study of the underlying sciences and supporting mathematics inherent in a technology; and of the methods, skills, materials, and processes commonly used and the services performed in the technology. A planned sequence of study and extensive knowledge in a field of specialization is required in technical education, including competency in the basic communication skills and related general education. Technical education prepares for the occupational area between the skilled craftsman and the professional person.

Technician education curricula are structured to prepare the graduate to enter a job and be productive with a minimum of additional training after employment; provide a background of knowledge and skills which will enable him to advance with the developments in the technology; and enable him, with a reasonable amount of experience and additional education, to advance into positions of increased responsibility (6, p. 573).

Technical Institute is a post-high school institution offering training for occupations in which emphasis is placed on the application of the functional aspects of mathematics and science, or an officially designated, separately organized technical institute division of a four-year institution. The primary purpose of the technical institute is training for an objective other than a baccalaureate degree (7).

Junior College is an institution of higher education which offers usually the first two years of college instruction, frequently which grants an associate degree, and does not grant a bachelors degree. It is either an independently organized institution (public or non-public) or an institution which is a part of a public school system or an independently organized system of junior colleges. Offerings include college transfer courses and programs; and/or technical and semiprofessional occupational programs or general education programs at the post-secondary instructional level; and may also include continuing education for adults as well as other community services (6, pp. 92-93).

Vocational Technical School is a post-high school institution which offers training programs at both the trade and technical level. This type of school has preparation for employment as its primary objective. While this type of institution serves post-high school students it does not give college credit or award an associate degree.

CHAPTER II

REVIEW OF THE LITERATURE

In this chapter a review of the literature relative to post-high school students is made. According to McConnell and Heist (8, p. 226) the first study dealing with college students was reported by Cattell in 1896. This study, which followed closely the pioneering work in intelligence testing, was an attempt to measure differences in sensory perception as a correlate of intelligence. Although research on college students can be traced to the late 1800's, it was the late 1930's before significant research in this area was reported. The Learned and Wood (10) study in 1938 was the first large scale investigation dealing with college students. Since that time research relative to students in higher education has rapidly increased. In 1964, Coffelt and Hobbs (9, p. 1) reported: "....the output of published research relating to college students has quadrupled in this decade over the previous one." This review deals with selective studies whose results bring into focus what seem to be some of the most educationally significant characteristics of students.

Scholastic Aptitude

The first major study of diversity among college students was reported by Learned and Wood (10) in 1938. Results of the Learned and Wood study furnished data on the variations in scholastic aptitude and achievement among 49 Pennsylvania colleges. Striking differences in the general level of intellectual attainment, as measured by achievement tests, were found among the several colleges and universities. Scores on a test of mental ability also showed diversity among student bodies and among groups of students studying in different fields. In three colleges with the lowest mean scores on a general culture test of sophomores, no student scored above the mean of the highest college, and the student with the lowest score in the highest college did not approach the mean score in the lowest three.

Using an 11 per cent sample (yielding 200 institutions) of the more than 1,800 institutions of higher learning in the United States, McConnell and Heist (8, pp. 230-248) investigated the distribution of ability of entering college students among institutions. In this study the American Council on Education Psychological Examination (ACE) was used as a measure of ability for comparing entering students at the institutions included in the sample. The mean ACE total score for 60,539 students in the study was 104.4 with a standard deviation of 27.1. Among the schools, the mean scores ranged from a low of 37.5 to a high of 142.2. This dispersion of institutional means covers almost four standard deviations.

While some colleges attracted or selected students nearly all of whose scores were above the national mean, other colleges attracted students whose scores were predominantly below the national mean. McConnell and Heist (8, p. 232) conclude: "....on the basis of academic ability alone the composition of the student bodies on a great many campuses is highly unlike that in many others."

Yonge (11, p. 255) reviewed two studies which reported results concerning diversity in ability levels among college student bodies which are consistent with the results reported above. In these two studies a positive relationship between the ability level of students and the highest degree offered by the institution was found.

Coffelt and Hobbs (9) studied the 1962 freshman classes at all Oklahoma institutions of higher education, both public and private. The diversity among students in Oklahoma colleges was similar to the patterns found in other studies. In this study, the composite standard score on the American College Testing Program (ACT) was used as one measure of scholastic aptitude. Median composite standard ACT scores ranged from a low of 9 to a high of 22. Approximately 50 per cent of the students at the two state universities had composite standard ACT scores of 21 or over, while approximately 25 per cent of the students attending the state's four-year colleges had scores of 21 and over.

Results of this study regarding the relationship between ability scores and the highest degree offered were similar to those reviewed by Yonge (11, p. 255). In the Oklahoma study when academic ability, measured by the ACT was considered, students at the state's four-year colleges were closer to students in the state supported junior colleges than to the students in the state universities.

As part of the study a check was made to determine the accuracy with which students were able to report their high school grades. The differences between high school grades reported by students and those calculated by the Registrar at East Central State College were found to be not statistically significant.

A study by Astin (4, pp. 3-20) reported diversity among student bodies. In this study information was collected from 127,212 entering students during freshman orientation week at 248 colleges and universities. Astin used six factors to analyze differences among institutions. These six factors were: intellectualism, estheticism, status, leadership, pragmatism, and masculinity. It was found that institutions' profiles vary greatly on some of these six factors.

Astin (4, pp. 111-112) also found that students were able to accurately report their high school grades. An opportunity to check the reliability of student responses to a questionnaire occurred when data from two schools were partially destroyed in transit. At these two schools students were resurveyed approximately six weeks after the original survey. An analysis of these data revealed that on only three of 18 items of factual information did fewer than 90 per cent of the students give the same response at both testings. While the responses to nonfactual items were somewhat less consistent than responses to factual items, there appeared to be a relatively high degree of consistency on these items.

Bereiter and Freedman (12, pp. 563-596) reviewed four studies which investigated differences in academic ability among various major fields. In general the average test scores of academic ability fall into an order with the physical sciences, engineering, and mathematics at the top, followed by literature, and the social sciences. The applied fields, agriculture, business, home economics, and education were at the bottom. When sex is considered a somewhat different distribution is found. Bereiter and Freedman conclude: "It therefore appears that any statement about the greater appeal of the natural sciences to students of high intelligence would need to carry the qualification, 'for men'."

Socioeconomic Background

In his review of the literature relative to socioeconomic background and college attendance Bradfield (13) summarizes several studies which show that economic background is an important variable in determining who will attend college. Rates of college attendance are higher among students from the upper socioeconomic levels than among students from lower socioeconomic levels.

Medsker and Trent (14) reached a conclusion, concerning the relationship of ability, socioeconomic background and college attendance, which supports the conclusions reported by Bradfield. This study involved 10,000 students in the 1959 graduating class in 14 midwestern communities with similar demographic and industrial features. This investigation found scholastic ability and high school rank to be closely related to college attendance. They conclude (14, p. 99):

> ....more important than either ability or high school record in determining college attendance was the occupational level of the father, as is evidenced by the fact that college entrance ranged from 72 to 78 per cent in the top three occupational categories, and from 28 to 37 per cent in the three lowest categories. In fact, more students of low ability from high socioeconomic homes entered college than did high ability students from low socioeconomic homes.

This investigation also reports relationships between the occupational level of the father and the type of college attended, and the educational attainment of the parents and the type of college attended. In general students who attended junior colleges came from homes where the father's occupation was classified in the lower levels and the educational attainment of parents was high school graduation or less. Students whose father's occupations were classified in the upper levels and whose parents had attended college tended to go to four-year colleges and universities.

Riesman (15) contends that students in the lower socioeconomic levels not only are less inclined to attend college, but often have a very limited geographic range in thinking about college. Riesman also discusses the inadequacy of information available to persons preparing to choose a college. Studies in Illinois found high school seniors living within 100 miles of Chicago who had never heard of the University of Chicago. Other students assumed they would attend the nearest state college and no other possibility had been considered.

A 1965 report relative to the California junior colleges treats the topic of family background of students (16,p.17). This report states:

> There are now sufficient data about the antecedent characteristics of Junior College students to permit several generalizations. These are made with the full recognition that community colleges attract students from all sections of California society. Nevertheless, students from the homes of clerical, skilled, and unskilled workers are greatly in the majority. Clark, for example, found that the student body at San Jose Junior College reflected the socioeconomic structure of the community it served. This and other studies indicate, too, that the more metropolitan the community, the more Junior College students will come from working class families. The relationships of family background to factors relevant to success in college are well established. Several of these factors are of considerable importance to Junior College education.
>
> 1. A majority of California Junior College students have parents with only high school educations.
>
> 2. Family encouragement and support is low for many Junior College students since education is not highly valued by the family. On the other hand, the upward social mobility of some working class families may result in unrealistic aspirations on the part of many students.

> 3. The majority of Junior College students find it necessary to work in order to support themselves in college. Often this means reduced course loads or such stress that achievement is impaired.
>
> 4. The relative lack of cultural and civic interests in homes from which a majority of Junior College students come may have profound effects on student motivation and achievement....and on the general student environment of the colleges.

Schoenfeldt (17, pp. 91-130) reached a somewhat different conclusion regarding the relative effects of socioeconomic background and intelligence on college attendance. Using the data from Project Talent, Schoenfeldt investigated the relationships among socioeconomic environment, general academic ability, and post-high school education. The results for male students are shown in Table I.

Using particular socioeconomic and intelligence combinations, it is possible to see what proportions of males in each cell are attending various types of educational institutions. From this table it is found that students from the higher socioeconomic levels attending technical schools tend to come from the lower ability groups while technical school students from lower socioeconomic levels are more evenly distributed among the ability levels.

While the data from this study show that both ability and socioeconomic background affect college attendance, ability has more influence than does socioeconomic background. If this were not so, the probability of college entrance of a student falling in the second ability quarter and the fourth socioeconomic quarter would be equivalent to the probability for the fourth ability quarter and the second socioeconomic quarter.

TABLE I

PERCENTAGE OF MALES IN SIX POST-HIGH-SCHOOL EDUCATION GROUPS BY SOCIOECONOMIC ENVIRONMENT AND GENERAL ACADEMIC ABILITY[a]

(n=17,738; grade 11 males)

First (Lowest) Socioeconomic Quarter
Ability Quarter[b]

	1st	2nd	3rd	4th
Four-year college	6	13	25	48
Junior college	4	6	6	13
Technical school	1	3	3	2
Trade school	3	2	2	1
Armed Forces school	8	16	9	9
None	78	60	55	27
	100%	100%	100%	100%

Second Socioeconomic Quarter
Ability Quarter

	1st	2nd	3rd	4th
Four-year college	12	15	34	70
Junior college	5	7	11	7
Technical school	4	2	4	2
Trade school	2	8	2	1
Armed Forces school	9	10	11	5
None	68	58	38	15
	100%	100%	100%	100%

Third Socioeconomic Quarter
Ability Quarter

	1st	2nd	3rd	4th
Four-year college	13	29	45	73
Junior college	8	9	10	8
Technical school	4	6	2	2
Trade school	4	3	2	--
Armed Forces school	4	8	11	5
None	67	45	30	12
	100%	100%	100%	100%

Fourth (Highest) Socioeconomic Quarter
Ability Quarter

	1st	2nd	3rd	4th
Four-year college	26	36	65	87
Junior college	12	16	11	5
Technical school	6	5	2	1
Trade school	3	2	3	--
Armed Forces school	13	5	5	1
None	40	36	14	6
	100%	100%	100%	100%

a. Source: Schoenfeldt (17, p. 93)

b. The 1st ability quarter is the lowest and the 4th is the highest.

Studies dealing with the fate of the impoverished student after college entrance are inconclusive. In discussing the relationship between college attendance, persistence in college, and socioeconomic background, Wolfle (18, p.160) states:

> ....financial, educational, and cultural differences which are indicated by the occupation of the father clearly play an important role in determining which high school graduates enter college....after students get to college, however, there is a change. The influence of socioeconomic differences disappears almost entirely. When college entrants are classified by the occupations of their fathers the percentages getting degrees are fairly constant....sons and daughters of farmers are the only important exception. Those who start to college are less likely to get degrees than are the sons and daughters of men in other types of work. The difference may be due to the handicap of poorer elementary and secondary education.

Schroder and Sledge (19) suggested that personal and motivational factors may be more important determinents of college achievement than the socioeconomic level of the parents; however, at least two studies by Astin (20) and Caskey (21) report that a majority of college dropouts came from the lower socioeconomic groups attending college.

Using matched groups of entering freshmen at a state university and a junior college, Bradfield (13, p. 129) examined the effects of an impoverished background on the college adjustment and performance of low-income males. A battery of tests to measure personal characteristics important to college adjustment and success and to measure level of aspiration was administered at the beginning and end of the first semester. The low-income group demonstrated characteristics similar to those which have appeared in college dropouts. The low-income group, however, had as good or better college performance, measured by grade point average, at the end of one semester and possessed levels of aspirations equal to those of the control group.

Bradfield concludes: "The results suggest that students from lower socioeconomic backgrounds are sufficiently similar to college students in general so that no gross changes need be made in the college structure to accomodate them."

Gottlieb (22) reports that, regardless of achievement level, middle-class and upper-class boys are more likely to report parents as influencers of one's choice to attend college than are respondents from the lower class. Also, within each class the high-level achievers report the greater parental encouragement. An examination of the patterns of influence of teachers and school counselors revealed that high achievers receive more encouragement more frequently than any of the other groups.

Sewell and Shah (23) report a longitudinal study of the relationships among socioeconomic status, intelligence, and the attainment of higher education. Their conclusions are (23, p. 1):

> Both socioeconomic status and intelligence have direct effects on planning on college, college attendance, college graduation, and considerable indirect effect on the level of educational attainment through their effects on college plans and college attendance. However, for females the relative effect of socioeconomic status on college plans, college attendance and college graduation was greater than was the effect of intelligence, while for males the relative effect of intelligence at each of these stages was greater than the effect of socioeconomic status. When only those who attended college were included in the analysis, intelligence was more important than was socioeconomic status, for both sexes, in determining who eventually graduated from college. But socioeconomic status continued to influence college graduation even after socioeconomic selection had played its part in determining who would attend college.

Heath and Strowig (24) investigated the relationship between education and occupational status from a point of view different from other investigators who have been cited in this review. The purpose of their study was an attempt to predict occupational status of non-college bound males. The relationship between occupational status four years after high school graduation and 17 independent variables was treated using multiple regression techniques. The results of this analysis showed three variables to be highly significant and valid: post-high school education ($p < .001$), community of residence ($p < .001$), and high school grade-point average ($p < .01$). From these data the investigators conclude (24, p. 144):

> Results suggest that family background factors and aspiration levels are not as important in predicting occupational status as are further education and training, high school achievement, and community of orientation in a highly industrialized urban society.

It is important to note that the independent variable of post-high school education is limited to vocational and technical programs. Students who had enrolled in baccalaureate degree programs were excluded from this study.

Aspirations

Sewell, Haller, and Straus (25) reviewed some 25 studies relative to occupational and educational aspirations from which they posed the general hypothesis "that levels of educational and occupational aspiration of youth of both sexes are associated with the social status of their families when the effects of intelligence are controlled." An extensive study involving a large sample of high school seniors produced results which did not support this hypothesis. This investigation showed no relationship between the social status of the student's home and his level of educational or occupational aspiration when measured intelligence was controlled.

Haller and Sewell (26) also found that rural-urban distinction in residence was not associated with educational or occupational aspirations in the case of Wisconsin high school girls and that, in the case of boys, occupational aspirations could not be predicted from residence. However, farm boys have less interest in a college education than do others.

Burchinal (27) studied differences in educational and occupational aspirations among farm, small-town, and city boys. Data from this study showed farm boys holding the lowest levels of educational and occupational aspirations and metropolitan boys having the highest levels of educational and occupational aspirations. Planning to farm had a depressing effect on aspirational levels. In fact, aspirational levels of nonfarm oriented, farm-reared boys approximated those of rural nonfarm and small-town boys.

Middleton and Grigg (28) report similar findings from a study in Florida. In this study white males from urban communities were more likely to have high educational and occupational aspirations than those from rural areas. In the case of white females there was a significant rural-urban difference in educational aspirations but not in occupational aspirations.

Output of Institutions

What effect does the quality of an institution have upon the achievement of students after college? This question has been considered by different investigators who have reached different conclusions. One hypothesis stated by Knapp and Greenbaum (29) is that behind the superiority of some colleges in the production of scientists and scholars lays a "singular hospitality to intellectual values". Holland (30) proposes the hypothesis that "differential student populations among colleges appear as a more probable explanation of the differences in productivity (of scientists and scholars) than the special qualities of individual institutions".

Clark (31) challenges both positions because they start with the students who enter an institution and move forward from this base line, without giving attention to why an institution has one particular group of entrants and not others. His position is that a radical separation of student qualities and institutional qualities is a distortion of reality that should be avoided.

Technician Education Students

One of the most consistent findings from literature reviews relative to technical education has been that research in this field has been limited. A 1960 review by Cooper (32, p. 336) stated:

> The literature of technical and semi-professional education tends toward generalization and observation rather than empirical data. The limited number of studies available dealt primarily with (a) the need for such training, (b) the types of institutions offering it, and (c) analysis of specific programs.

In 1964 Roney (7) found the situation to be very similar to that of 1960. According to Roney (7, p. 14):

> Literature pertinent to this study was found to be largely descriptive in nature. Reports of controlled experimental research appeared to be limited, and when such reports were available, they were short, highly specific and localized projects.

Larson (33) reported a similar conclusion in his 1966 review. In the preface to the review he states:

> Since technical education is a relatively new field, the amount of significant, sophisticated research is quite limited. However, much helpful information for research is contained in reports, conference summaries, articles, and other publications.

Characteristics of Technician Education Students

In spite of the growing interest in technician education in recent years there are surprisingly few factual data relative to the kinds of individuals served by technician education. While factual information is scarce, speculation abounds; however, much of the speculation deals more with what technician education students ought to be than with what they are. Much of the information concerning students is clouded with inaccuracies and prejudices, but from it emerge certain generally accepted conclusions (2, p.88).

Smith and Lipsett (34) state that in choosing a college the technical institute student is less apt to consider such factors as social contacts, a beautiful campus, renowned athletic teams, or distinguished professors than are students at many liberal arts colleges. In contrast, the technical institute student is more interested in a specific course of study leading to an occupational goal.

These authors further report the results of a 1954 study dealing with successful recruiting techniques. In this study it was found that for 15 of 34 institutions "recommendations of graduates" was the most successful recruiting technique.

Henninger (35) reports that at entrance the average age of the technician student is 20 years and the range was from 18 to 27 years. This information was collected from 93 post-high school institutions. Henninger also studied attrition rates of technician education students.

Data concerning attrition revealed that dropout figures were substantially influenced by students quitting school to accept jobs. Regarding this Henninger states (35, p. 58):

> In many instances such students complete the technical portion of the curriculum but do not want to wait to complete the general course requirements for graduation.

According to Graney (2, p. 88) other less comprehensive studies support Henninger's findings concerning the average age of entering technician education students. These other studies, however, show a tendency for resident students in small town schools to be younger than commuting students in schools located in larger communities.

Miller (36) describes the technician education student as a person with average or above average intelligence, whose high school transcript may not reflect his true potential as a technician as a result of improper motivation during high school. This student may express a disinterest in mathematics and science--at least the kind to which he may have been exposed in high school. The technician education student must have an intense interest in the specialized field of technology he wishes to pursue. The necessity for this interest lies in the structure of the curriculum.

Based upon 20 years of observation, Van Hall (37) gives the following description of the technical student:

> The technical student is work oriented, pragmatic, has an unquenchable sense of curiosity and comes to school with clearly established career goals. The technical student will show a strong aptitude in the mathematical, scientific and mechanical areas, but will show little interest in English and social studies. The technical student's scores on standardized intelligence tests may not be a good indication of his true potential as a student, since these tests are largely verbal-based. Finally the technical student does not possess a deep social consciousness concerning what some students

> consider the great issues of the day. Club activities which are directly related to the technical student's curriculum are the only ones in which he is likely to show an interest.

Comparison of Students

Do non-college students, junior college students, college students, and technical students differ along certain measurable dimensions? This question has been dealt with in several studies and the general conclusion seems to be that these four categories of students do differ.

A report relative to issues affecting California junior colleges touches on the academic ability of students in terminal programs In regard to academic aptitude scores, the report states (16, p. 16).

> In general, the students who declare transfer objectives have considerably higher mean scores than those in terminal programs. Among the numerous non-transfer programs, however, there are marked differences in student aptitude. The more selective technical fields, for example, attract students whose academic aptitude is superior to that of most students in a number of transfer majors.

This report also points out that many junior college students do not exhibit realism in their vocational and occupational goals. While more than two-thirds of the entering students express transfer objectives, less than one-third actually transfer.

Cooley and Becker (38) using the data from Project TALENT, a nationwide study of high school youth, describe the junior college student. Non-college students, college students and junior college students were compared along six measures of information and eight measures of general aptitude and ability. Using six-group discriminant analysis it was found:

> ....that junior college students have a tendency to be more like non-college students in terms of ability. Although

> the junior college student looks more like the non-college student in terms of ability, he appears to be more like the college student in terms of socioeconomic factors.

Perrone (39) reports a similar result from a study in which technical students, college students and terminal high school students were compared on family, education and aptitude measures. Data from this study lead to the conclusion that "the technical students in this study are between the college student and the terminal high school student on family, education and aptitude measures."

Taylor and Bondy (40) compared the interest profile patterns of graduating male trade and industrial students and male collegiate technical students. The Strong Vocational Interest Blank (SVIB) was used to develop interest profile patterns. The sample for this study was selected from male students successfully completing one of the collegiate technical division programs and from male students successfully completing one of the trade and industrial division programs at Ferris State College.

The null hypothesis of no difference in interest profile patterns between the two groups was rejected. Three of the eleven interest family comparisons were significantly different. Two other interest families suggested a tendency toward significant differences.

Differences between technical students and engineering students were investigated by Herman and Zeigler (41). On tests of academic ability the engineering students were found to have higher mean scores than the technical students. Also the degree of success within a curriculum and ability scores seemed to be related. It was also found that the interest patterns of high achievers in both programs were very similar.

Turner, Guertin, and Cooper (42) report an interesting study in which they investigated differences between students selecting different programs at a junior college. One of the questions dealt with in the study was (42, p. 32):

> Can students in the various curricula be differentiated? The answer is affirmative at the .01 level of confidence. ....supporting the conviction that technical students are different, and ought to have more differential studies made of them.

Another study in which technical students and engineering students were compared is reported by Miller (43). Using the father's education and occupation, and family income to measure social class background Miller found that technical institute students come from significantly lower socioeconomic backgrounds than engineering students. However, social class background was not related to success for either group of students. He also found the engineering group to be more theoretically oriented with a significantly higher need for dominance and motivation for achievement than the technical institute group.

Hoyt's (5) Speciality Oriented Student (SOS) research project, designed to study students attending post-high school trade, technical, and business schools, is one of the most comprehensive studies in this area of education. The SOS project officially started in 1962 was planned as a broad scope, open-ended, logitudinal study. Since the scope of the project was broad it was meaningless to specify a particular point in time when the project should be discontinued.

For purposes of the study the term "speciality oriented student" was defined as (5):

> ....one whose motivations toward educational achievement are built largely around a desire to acquire a specific

> occupational skill or set of skills. Courses designed to broaden his potential for avocational living have little or no appeal to this student. He may be described as expressing relatively more interest in being "trained" than in being "educated."

One of the purposes of the project was to verify, refute or alter this definition.

During the first five years of this project, data were collected from 12,000 students attending post-high school trade, technical, and business schools. Of these, about 1,000 were in Iowa post-high school public school settings and 11,000 in post-high school private schools located in various parts of the United States. According to Hoyt (44) the data from these students lend some support to the validity of the original definition of the "speciality oriented student". A substantial amount of demographic information has been accumulated from which it is found (44, p. 3):

> ....that most of these students are less than 21 years of age, come from lower-middle socioeconomic backgrounds, receive only a portion of school expenses from parents, rate their training programs as good, complete their training and enter into training-related occupations.

In conjunction with the SOS program Whitfield (45) investigated the student's reasons for attending trade, technical, and business schools by using open-ended responses to the question: "What finally made you decide to come to this school?" Answers to the questions were categorized and analyzed. By far the most popular category was "curriculum and facilities" which was used almost three times as often as the second place category.

A study by Brogley (46) gives some indication of student attitudes toward expressing an interest in such training. In this study, when Iowa high school students were asked, on written questionnaires, about their post-high school plans approximately 20 per cent indicated that they were considering post-high school occupational training. Follow-up studies of Iowa high school graduates indicated that between eight and ten per cent actually enrolled in such training. Yet, Brogley found that approximately four per cent of Iowa high school seniors would admit orally in front of their peers that this kind of training represented a goal for them.

Using data collected prior to 1964 from approximately 5,000 students attending 22 post-high school trade, technical, and business schools, Hoyt (44) reported that 56 per cent of the students stated that they made the decision to attend the school in which they were enrolled, while they were still in high school. Some 89 per cent of these students indicated that they had a high school counselor, and 60 per cent indicated that they had visited with a counselor about attending a speciality school.

Prediction Studies

The amount of research relative to identifying factors which may be useful in predicting success of technician education students is limited; however, some studies in this area have been reported. Most of the studies reported are localized and limited in scope. Because of these factors it is not possible to obtain conclusive results concerning the prediction of success from these studies.

Studies by Greenwood (47) and Righthand (48) investigated factors that might predict success. Greenwood concluded that most failures of technician education students were the result of more than one factor. Righthand used ten independent variables to study differences between dropouts and survivors. Of the ten independent variables, the mathematics portions of the Engineering Physical Science Aptitude Test and the score on the Survey of Study Habits and Attitudes were found to be effective in discriminating between the groups.

The usefulness of the American College Testing Program in predicting grades in two-year terminal, vocationally-oriented curricula was investigated by Hoyt (49). A sample of 834 students from six colleges with a wide geographic spread was used in the study. Conclusions from the study were (49, p. 23):

> 1. The academic potentials of the six groups were remarkably homogeneous. This was more true when potential was measured by high school grades than when it was measured by A.C.T. scores.
>
> 2. These potentials were well below the average established for all colleges, but only slightly below the general junior college average. They were weaker in English and social studies than in mathematics and natural science.
>
> 3. College grades for these students averaged slightly higher than comparable grades for all college students and for all junior college students.
>
> 4. A.C.T. scores and high school grades were about equally predictive of college grades. Combined, they possessed useful predictive validity for these "non-academically" oriented students. The level of predictability was, however, reduced over that typically obtained from such data.

Moss (50) investigated the effect of high school industrial arts upon success in post-high school technical programs. The results of the study showed no differences in scholastic achievement that were attributable to differences in the amount of senior high school industrial arts experiences.

Studies by Shigetomi (51) and Brown (52) were concerned with the prediction of success for technical students. Shigetomi found that the Verbal Reasoning and Numerical Ability portions of the Differential Aptitude Test Battery had a significant relationship with the grade point average. Brown found that reading vocabulary was the single best predictor of success among some seven variables investigated.

The results of Brown's (52) study are consistent with those of Seegars and Rose (53). Using a sample of students from the University of Kentucky these investigators found (53, p. 296):

> ....that a student with an average IQ (for college students) and a high level of verbal understanding will more likely earn "A's" and "B's" in college than will a student with above average intellectual capacity (for college students) and poor reading comprehension.

Summary

Research relative to college students dates back to the 1938 study by Learned and Wood (10). During the ensuing years numerous studies dealing with various aspects of college students have been reported. Rapid increases in college enrollments during recent years have created demands for more information which can be used for planning and evaluation in higher education.

While many and varied problems have been studied, and numerous methods have been used in studying the problems, most of the studies seem to have a common element. This common element appears to be diversity among college student bodies. Studies which have investigated student characteristics by major field also show differences among the students studying in the various fields.

Except for Hoyt's (5) Specialty Oriented Student research program most of the research relative to technician education students has been localized studies which were limited in scope. While the Specialty Oriented student program is broad in scope it has primarily dealt with students in private schools.

From a review of several studies it appeared that technician education students have characteristics which were different from the characteristics of students in several other fields. Characteristics of technician education students seem to be such as to justify the existence of specialized curriculums and institutions for meeting the educational needs of these students. Although studies which showed differences between the technician student and other types of students were found, no study was found which examined the characteristics of technician education students enrolled in different types of institutions.

Research Questions

The purpose of this study was to identify differences and similarities among entering technician education students at four post-high school institutions. Based upon the literature review three questions were formulated for consideration in the study.

Question 1: Do students entering technician education programs at different types of institutions have different personal and social background characteristics?

Question 2: Do students entering technician education programs at different types of institutions come from different socioeconomic backgrounds?

Question 3: Do students entering technician education programs at different types of institutions differ on measures of scholastic aptitude?

CHAPTER III

METHODOLOGY

The major purpose of this study was to identify differences and similarities among technician education students served by different types of post-high school institutions. A study of the literature revealed little information concerning characteristics of students served by technician education programs at different types of institutions. The problem with which this study was concerned was the lack of descriptive information concerning students served by technician education programs at different types of institutions. From the literature a number of student characteristics thought to be important for educational planning and student guidance were identified. Also, approaches used in studies of diversity among college student bodies were examined to aid in formulating the procedures used in this study.

Institutions included in the study were selected from the 12 public supported post-high school institutions in the state which offered technician education programs. Four institutions were selected for the study. Three instruments were used to collect data for the study--two standardized tests and a questionnaire. The study population was defined and data were collected from a total of 724 students at the four institutions. All data were collected in group settings at the individual institutions. Data relative to three research questions were examined and conclusions drawn. The remainder of this chapter is devoted to a more detailed description of the study procedures.

Description of Schools and Programs

Four institutions offering technician education programs were selected for this study. These four institutions were: (1) a residential, public supported, junior college, (2) a residential, public supported vocational technical school, (3) a non-residential, public supported metropolitan technical institute, and (4) a public supported, residential technical institute located on a state university campus. These institutions were selected primarily because of their diverse characteristics. While there are some common elements among the selected institutions, each institution has certain unique characteristics which set it apart from the others. In addition, selection of these institutions was based upon the desire to include institutions which had established technician education programs. Each of these institutions had operated technician education programs for a minimum of six years prior to 1967. A list of the institutions and their locations is given in Appendix A. A brief description of the institutions follows.

The residential, public supported junior college selected for the study is located in a county seat city of approximately 13,000 population. This city, located in a primarily rural area, is some 90 miles from the nearest metropolitan city. As originally created in 1919 the institution was a state school of mines. In April 1943, by act of the legislature, the school of mines was changed to a state supported junior college. Purposes of the institution as given in the college catalog are (54, p. 9):

> ....college is organized to prepare young people for enriched living and occupational competence and to offer continued cultural or occupational education to adults. It aims to help the young student to develop a sound philosophy of life, to cultivate self-reliance and independence, to acquire a consciousness of civic responsibilities, and to become vocationally competent.
>
> To carry out these plans, two types of curricula are offered. (1) The basic curriculum contains the typical freshmen and sophomore courses for students who wish to complete four years of college work either in general education or in professional or pre-professional training. This course enables any student to enter a four-year college or university as a junior. (2) The terminal program enables the student who desires a two-year college course to secure a cultural and vocational education best suited to his needs. The chosen course may lead to the Associate in Arts Degree.
>
> To further the cultural and vocational education of adults of the community, the college offers, either with or without credit, a night school program designed to enrich leisure time, to increase efficiency in participation in public affairs, in home life, and in occupational activities.

The college is fully accredited by the state accrediting agencies and by the North Central Association of Colleges and Secondary Schools. The Associate of Arts Degree is offered in both transfer and terminal curricula.

To be eligible for admission a student must have graduated from an accredited high school. Exception to this requirement is made for students over 21 years of age who may be admitted on a probationary basis. After completing two semesters of satisfactory work, the probationary student may be admitted on a regular basis.

Total enrollment at this institution for the fall semester of 1967 was 1,844. This total was comprised of 1,248 first-year students and 596 second-year students. Of the 1,248 first-year students, approximately 230 were first time enrollees in the four technician education programs studied at this institution.

Organizationally the college consists of eight divisions: agriculture; business education; communications; fine arts; industrial education; engineering, science and math; biological and earth science; and social sciences. Students enrolled in technician education programs in the division of industrial education were selected as subjects in this study.

Within the division of industrial education a total of 12 transfer and terminal curricula are offered. As stated in Chapter I, only students enrolled in curricula which are reimbursed by the Technical Education Division of the State Department of Vocational-Technical Education are included in the study. These programs are: business data processing technology, design and drafting technology, electronics technology, and mechanical technology. In addition to these four curricula the industrial chemistry program meets the reimbursement requirement. This program, however, does not require a student to declare a major in industrial chemistry until the end of the first year. Since, in this program, it was not possible to identify the entering technician education student, the industrial chemistry curriculum was excluded from this study.

Using the format developed by Roney (55), Table II was constructed to present a content analysis of the four curricula included in the study. Each of these curricula is four semesters in length.

TABLE II

ANALYSIS OF CONTENT DISTRIBUTION OF TECHNICIAN EDUCATION CURRICULA AT A STATE SUPPORTED JUNIOR COLLEGE

	Curriculum			
Curriculum Division	Bus. Data Processing Sem. Hrs.	Design Drafting Sem. Hrs.	Elect. Sem. Hrs.	Mechanical Sem. Hrs.
Total	65	67	67[a]	68[b]
Technical Speciality courses - basic and advanced courses in technology	35	32	35	25
Mathematics courses	7	13	6	15[c]
Science courses	0	4	8	8
Auxiliary & supporting technical courses	9	4	0	6
General Education courses	14	14	14	14

---

a. The curriculum outline for this program includes four semester hours of electives which are not shown in the analysis.

b. The mechanical curriculum has three options: automotive, refrigeration and air conditioning, and welding. Each student in this program is allowed considerable freedom to choose courses which are best suited to his needs.

c. Students in this curriculum are given a choice of mathematics courses.

The residential vocational technical school selected for this study was organized in 1946 to (56, p. 5):

> ....provide a vocational and technical education program for the student with the initiative and talents to become a skilled craftsman or an industrial technician. The basic techniques and skills which apply to each specific occupation are emphasized. The ultimate goal of each technical course is successful employment in industry.
>
> ....is designed to serve that area of industry lying between the semi-skilled crafts and the engineering technicians.

The school is located in a county seat city of approximately 18,000 population. This city is 30 miles from the nearest metropolitan city.

Graduation requirements are successful completion of all course requirements and recommendation of the department head. Upon graduation the Certificate of Accomplishment is awarded. Students studying at this institution are not awarded college credit.

To be eligible for admission at this institution a student must have completed high school or have attained the age of seventeen and one-half years. Total 1967 fall enrollment was 2,360.

Operating on a trimester calendar the school offers 43 trade and technical programs varying in length from one trimester to six trimesters. Three of the 43 programs are reimbursed by the Technical Education Division of the State Department of Vocational-Technical Education. These three are: (1) electronic data processing, (2) drafting, and (3) industrial electronics. At the beginning of the 1967 fall trimester there were 275 first time students in these three programs. Electronic data processing is a four trimester program while drafting and industrial electronics each require six trimesters for completion.

Each day the technician education student at the vocational technical school spends four hours in classes devoted to technical courses. The remaining two hours of the six-hour class day are devoted to general education subjects.

An analysis of the clock hours devoted to the major subject areas for the three curricula is given in Table III.

TABLE III

CLOCK HOURS OF INSTRUCTION IN TECHNICIAN EDUCATION CURRICULA AT A VOCATIONAL TECHNICAL SCHOOL

	Curriculum		
Curriculum Division	Electronic Data Processing Clock Hours	Drafting Clock Hours	Industrial Electronics Clock Hours
Total	1,680	2,720	2,640
Technical Courses	1,376	2,080	1,920
Mathematics	160	320	320
General Education	144	320	400

Technical institute students included in this study were selected from two technical institutes operated by a state university. These institutes,operated as divisions of the University's College of Engineering offer two-year, college-level,specialized programs leading to an associate degree in technology. The on-campus institute was established in 1937, and the metropolitan institute was organized in 1961. Curricula at these institutes have been designed to prepare graduates for a number of closely related positions in industry. Sufficient specialized technical courses have been included to assure that the graduates will be able to serve effectively in their initial assignments in industry. Related technical courses are included in the curriculum to add versatility to the employee. Science and mathematics courses are included to give the graduate an understanding of the reasons and purposes of the operation or function for which he is responsible. These courses also enable the student to develop the ability to use scientific principles as tools in the development of ideas. General education courses are considered an important part of the curricula (57).

The institutes will admit (57, p. 5):

> Any student who has graduated from a high school accredited by the State Department of Education and who has completed two years of high school mathematics, which must include one year of algebra and preferably also one year of plane geometry is eligible for admission into any department of the Technical Institute. Students who fail to meet the mathematics entrance requirements or who need help in mathematics may enroll in a remedial mathematics course.
>
> A student who is a graduate from a high school outside of the State is eligible for admission if he can present a transcript showing graduation in the upper 50 per cent of his high school class.

At the beginning of the 1967 fall semester there were 16,365 students on the main university campus. Of this total 360 were enrolled in the on-campus technical institute. This enrollment consisted of 150 first year students and 210 second year students. Programs offered at the on-campus institute are: aeronautical, construction, drafting and design, electronics, fire protection, mechanical, metals, petroleum, and radiation and nuclear technologies. The enrollment at this institute consists primarily of full-time, residential students.

The metropolitan technical institute had 805 students enrolled during the 1967 fall semester. This enrollment was made up of full-time and part-time students attending both daytime and evening classes. These 805 students were enrolled in 6,393 semester credit hours, which represents a full-time equivalent enrollment of 426 students. Programs offered are architectural and structural drafting and design, civil, computer programming, industrial drafting, electronics, and instrumentation and process control technologies.

The metropolitan technical institute does not provide residential facilities. Each student is responsible for making his living arrangements.

Except for the civil and computer programming technologies at the metropolitan institute, which require 67 semester hours, all programs at both institutes require 68 semester hours for graduation. The structure of the curricula at the two institutes is very similar. In general 64 per cent of each curriculum is devoted to specialized technical courses, 15 per cent is devoted to mathematics courses, six per cent is devoted to science courses, and 15 per cent is devoted to general education courses.

Population

Subjects utilized in this study were selected from the four participating institutions using the following criteria: (1) They must be enrolled in the technician education program for the first time in the 1967 fall semester, and (2) must be enrolled as full-time day-time students. All students enrolled in the selected programs at the four participating institutions were eligible to be included in the study. Table IV lists the total number of subjects by school and technology. Except for a limited number of students who were absent and 12 electronic data processing students at the residential vocational technical school,who had conflicting schedules,the figures in Table IV represent the total number of students meeting the criteria for inclusion in the study.

TABLE IV

DISTRIBUTION OF STUDENTS INCLUDED IN THE STUDY
BY TYPE OF SCHOOL AND TECHNOLOGY

Technology	Junior College	Vocational Technical School	Metropolitan[a] Technical Institute	On-campus Technical Institute
Aeronautical				22
Computer Programming			30	
Construction				11
Data Processing	121	65		
Drafting		95		
Drafting & Design	34		36	16
Electronics	33	98	34	26
Fire Protection				13
Mechanical	36			22
Metals				7
Petroleum				9
Radiation				16
Total	224	258	100	142

a. For purposes of the study the students in architectural and structural drafting and design, civil, and industrial drafting technologies are categorized as drafting and design; and students in instrumentation and process control technology are classified as electronics technology students.

Instruments

In this investigation two standardized instruments were used as measures of scholastic aptitude. The instruments used were the Technical Scholastic Test (58) and the Nelson-Denny Reading Test (59). In addition to the two standardized instruments, an instrument, Student Information Form I, was designed to obtain data for determining the socioeconomic background of each student. This instrument also provided the personal-social data used in the study.

The primary reason for using the Technical Scholastic Test in this investigation was that it was one of three tests in the Dailey Vocational Tests series which were designed for use with students in post-high school trade, technical, and business schools. According to Dailey (58, p. 3):

> These tests are designed particularly for use with those who plan to enter occupations at the skilled level in trade, technical and business fields. Further, they are designed to have practical value when used with applicants in business and industry.

The three tests which comprise the Dailey Vocational Test series are: Technical and Scholastic Test (TST), Spatial Visualization Test (SVT), and Business English Test (BET). These tests may be administered separately or as a battery. The tests have an effective range from the eighth grade through post-high school training and into adulthood when used with those comtemplating entry into trade, technical, and business occupations at the skilled level. The tests are not designed to measure either "pure" aptitude or "pure" achievement. Rather, they are made up of a variety of aptitude and achievement items which, in various combinations, are designed to predict both training and occupational success in a number of skilled trades and technical occupations. The TST also satisfied the criteria of acceptable reliability, suitable length, and ease of scoring.

The TST contains 150 items which are designed to measure knowledge and abilities important for success in technical occupations. Dailey states that the test was designed to: (a) assess the technical knowledge acquired through practical experience with electrical and mechanical equipment, (b) measure the knowledge acquired through academic study of the physical sciences, and (c) indicate general scholastic ability.

In addition to a Total score, Technical and Scholastic composite scores are obtained from the test. The Technical scale measures important aspects of technical ability at the sub-engineering level and the Scholastic score measures potential for profiting from training and is closely related to general intelligence. These two subscales are made up of items of seven types interspersed throughout the test. The kinds and numbers of items are (58, p. 4):

Electricity--basic knowledge of the fundamentals of electricity (15 items).

Electronics--basic knowledge of the fundamentals of electronics (15 items).

Mechanical Information--knowledge about automobiles, tools, and common mechanical devices (30 items).

Physical Sciences--knowledge about physics, chemistry, astronomy, geology, and other physical sciences (15 items).

Arithmetic Reasoning--basic mathematical reasoning; simple arithmetic computation (30 items).

Elementary Algebra--fundamental knowledge of the principles of algebra (15 items).

Vocabulary--ability to define a list of carefully selected non-technical words (30 items).

The Technical score is based on 75 items from the Electricity, Electronics, Mechanical Information, and Physical Sciences subscales. Arithmetic Reasoning, Elementary Algebra, and Vocabulary subscales are used to obtain the composite Scholastic score. The 150 item test can be administered in 65 minutes without introducing reading speed as a significant factor in test scores.

Reliability coefficients for the Total Score, the Technical, and Scholastic composite scores, and the seven subscale scores were calculated using the Kuder-Richardson Formula 21. This formula is not appropriate for use with a timed test if the time limits have any affect; however, Dailey (58, p. 29) justifies its use with this test because this is essentially a power test with generous time limits. Coefficients of reliability for trade-technical students are shown in Table V.

TABLE V

RELIABILITY DATA FOR THE TECHNICAL SCHOLASTIC TEST FOR TRADE-TECHNICAL STUDENTS[a]
(n=1,607)

Scale	
Electricity	.63
Electronics	.57
Mechanics	.78
Science	.66
Arithmetic	.77
Algebra	.71
Vocabulary	.67
Technical	.87
Scholastic	.81
Total	.91

a. Source: Examiner's Manual for the Dailey Vocational Tests (58,p.30).

An examination of Table V reveals that the Technical and Scholastic composite scores and the Total score are reliable, but the seven subtest scores are almost consistently lower than would be needed for use of these subtests as separate scores with individual examinees (58, p. 29).

Use of the Nelson-Denny Reading Test as a measure of scholastic aptitude is based upon the findings of Brown's (52) study, which showed a positive relationship between reading skills and academic achievement. This test also satisfied the criteria of acceptable reliability, suitable length, and ease of scoring.

There are two comparable forms of the Nelson-Denny Reading Test, each containing 100 items to measure vocabulary and 36 to measure reading comprehension. In this investigation Form A was used. The comprehension score is given double weight in arriving at a total score. Ten minutes are required for administering the vocabulary portion of the test and twenty minutes are required for administering the comprehension part of the test.

Reliability coefficients were calculated by using the equivalent forms method. This method was considered to be more appropriate than the split-half technique since speed is an important factor in this test. Reliability coefficients are given in Table VI.

TABLE VI

RELIABILITY DATA FOR THE NELSON-DENNY READING TEST[a]
(n=110)

Scale	Coefficients
Vocabulary	.93
Comprehension	.81
Total	.92

a. Source: Examiner's Manual for the Dailey Vocational Tests (58, p. 26).

This test is designed for use in grades nine through 16. Norms are provided for each grade for which the test is designed. Means and standard deviations for Form A are given in Table VII.

TABLE VII

NELSON-DENNY READING TEST--MEANS AND STANDARD DEVIATIONS[a]

Grade	Number of Cases	Vocabulary		Comprehension		Total	
		Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
9	1,457	17.42	8.53	26.76	11.26	43.94	18.23
10	1,762	21.82	10.18	30.50	11.46	52.32	20.03
11	1,877	25.82	12.37	34.91	12.56	60.71	24.47
12	1,614	29.51	14.00	38.04	13.02	67.59	25.54
13	1,581	36.27	15.54	41.50	13.18	77.82	27.10
14	968	43.62	15.85	46.88	11.56	90.80	25.03

a. Source: Examiner's Manual for the Nelson-Denny Reading Test (59, p. 21).

Information for determining socioeconomic background and the personal-social factors thought to be useful in the study were obtained by the use of the Student Information Form I. This instrument, consisting of 59 items, was designed for use in the study. A copy of the instrument is included in Appendix B.

Design of the instrument was based upon the literature review and personal interviews. From these sources an instrument consisting of 84 items was constructed. This preliminary instrument was administered to 39 technician education students at Oklahoma State Tech during July 1967. The purpose of this was to assess the readability of the instrument and to determine the usefulness of the individual items. An analysis of the data from the preliminary instrument revealed that technician education students could read and interpret the items. This analysis also showed that some of the items did not provide useful information. Using the information gained from the trial testing the form was revised. In revising the instrument the original 84 items were reduced to 59.

Since this research was conducted pursuant to a contract with the United States Office of Education it was necessary to secure government approval for the use of the Student Information Form I. This approval was granted August 8, 1967.

Socioeconomic Index

Accurate measurement of socioeconomic background is difficult if not impossible to achieve. However, numerous scales have been designed for use in social stratification. In general the scales for determining socioeconomic condition involve the use of occupation, education, and income as indicators.

In this study the socioeconomic index developed by Duncan (60) was used to determine socioeconomic background. This scale evolved over a period of years from a study started by Cecil C. North and Paul K. Hatt. In 1945-46 North and Hatt designed a study of occupational prestige that led to the National Opinion Research Center (NORC) Study which was conducted in March, 1947.

Numerous studies have used the NORC-North-Hatt occupational prestige scores as a measure of occupational status, though value of this scale is limited for the reason that scores are not available for occupations employing more than half of the labor force. The development of the socioeconomic index for all occupations was carried out with the aid of a research grant to the University of Chicago from the United States Public Health Service. This index was to represent each of the occupations in the detailed classifications of the 1950 Census of Population. As defined by Duncan (60, p. 115) this index was to have:

> ....both face validity in terms of its constituent variables, and sufficient predictive efficiency with respect to the NORC occupational prestige ratings that it can serve as an acceptable substitute for them in any research where it is necessary to grade or rank occupations in the way that the NORC score does but where some of the occupations are not on the NORC list.

Development of the socioeconomic index for all occupations was based upon the considerable evidence which showed that measures of educational level and income level could be combined to estimate an occupation's "prestige". The major purpose for the development of the scale was not to predict unknowns, but to construct from the 1950 census information a graduated rating scale which could be used in research requiring a system of stratification. The index is given in three forms, any one of which can be used in statistical analysis. The one selected for this study uses a scale with a range approximately between one and 100. The scale is a ranking of occupations in relation to each other in terms of prestige and is not related to the number of persons in each group. Students of social stratification are in general agreement that the occupation of the husband is more likely than the occupation of the wife to reflect the socioeconomic status of the family. For this reason, this study uses a socioeconomic index for all occupations developed from census data for males.

In this study the socioeconomic background of the student was determined by assigning a numerical value from the socioeconomic index for all occupations to the father's occupation. The father's occupation was obtained from the student's response to item number 14 on the Student Information Form I.

Data Collection

Collection of data for the project was accomplished in group settings with the cooperation of teachers and administrators at the schools involved. Excepting information from petroleum technology,all data were collected within the first six school days of the fall semester. Data from the petroleum technology students were obtained on the ninth school day. Table VIII shows the data collection schedule by school and by technology.

TABLE VIII

DATA COLLECTION SCHEDULE

	Day of Fall Semester on which Data Were Collected[a]			
Technology	Junior College	Vocational Technical School	Metropolitan Technical Institute	On-campus Technical Institute
Aeronautical				1 & 4
Computer Programming			1	
Construction				3
Data Processing	5	4		
Drafting		3 & 4		
Drafting & Design	5		1 & 2	2
Electronics	5	3 & 4	1 & 2	2
Fire Protection				2
Mechanical	6			4
Metals				2
Petroleum				9
Radiation				2 & 4

a. The first day of school ranged from September 5, 1967 to September 17, 1967 for the four institutions.

The general procedure used in collecting data was to administer the three instruments at one setting. The Nelson-Denny Reading Test was administered first followed by the Technical Scholastic Test and the Student Information Form I. Upon completion of the Student Information Form I the individual in charge of testing quickly checked each one for completeness. The total time for testing was approximately three hours. There were two exceptions to the general pattern for collecting data. Because of the class schedule of the junior college data processing students it was necessary to administer the Nelson-Denny Reading Test at one session and the other two instruments at another setting. The other exception involved the students at the two technical institutes. These students were required to take the Nelson-Denny Reading Test as part of a two-day orientation process. Since these results were available for use in the project it was not deemed necessary for the technical institute students to take the reading test again.

Statistical Procedures

Two methods were used for data analysis in this study. Analysis of variance was used to analyze standardized test scores and the socioeconomic index values. In all cases where this statistic was used,a test for homogeneity of variances by Bartlett was made prior to the analysis of variance. The Newman-Keuls (61) method was used to probe the nature of differences between means when significant F's were found. Data relative to the selected personal and social factors were analyzed using percentages.

2

CHAPTER IV

RESULTS

The purpose of this study was to identify differences and similarities among entering technician education students at four post-high school institutions. Results of analyses of the two basic types of data utilized in this investigation are presented in this chapter. Conclusions and recommendations based on these results are presented in Chapter V.

The analyses are presented in three sections. First, data concerning selected personal and social background factors are presented. In the second section consideration is given to the socioeconomic background of the entering students. Presented in the third section are the results of analyses of scholastic aptitude variables.

Personal Social Attributes

In this study data were obtained from a total of 724 entering students. By school, distribution of the students was: 224 at the junior college, 258 at the vocational technical school, 100 at the metropolitan technical institute, and 142 at the on-campus technical institute. Each of the 724 students completed the Student Information Form I from which data concerning personal social attributes were obtained. In a number of cases, when individual items were examined the total number of respondents was less than 724. Primarily this was a result of the respondents either omitting the item or marking more than one choice.

Ages of Entering Students

Junior college students were younger than students at the other schools. Percentages of students 18 years and under were: junior college, 76 per cent; vocational technical school, 55 per cent; metropolitan technical institute, 51 per cent; and on-campus technical institute, 52 per cent. The metropolitan technical institute had the highest percentage in the category of 20 and over. The percentages for this category were: junior college, eight per cent; vocational technical school, 28 per cent; metropolitan technical institute, 35 per cent; and on-campus technical institute, 30 per cent. By school the range of ages was: junior college,17 to 35 years; vocational technical school, 17 to 39 years; metropolitan technical institute, 17 to 35 years; and on-campus technical institute, 17 to 37 years. The age distributions of entering students are given in Table IX.

TABLE IX

AGE DISTRIBUTION OF ENTERING STUDENTS

(All Values are Percentages)

	Institution			
Age	Junior College n=224	Vocational Technical School n=258	Metropolitan Technical Institute n=100	On-campus Technical Institute n=142
17 Years	12	8	3	10
18 Years	64	47	48	42
19 Years	16	17	14	18
20 Years and Over	8	28	35	30

Sex and Marital Status of Entering Students

Distributions of sex and marital status of entering technician education students are given in Table X. The majority (89 per cent) of the students included in this study was males. By institution, percentages of males were: junior college, 75 per cent; vocational technical school,96 per cent; metropolitan technical institute, 93 per cent; and on-campus technical institute, 98 per cent. A majority (84 per cent) of the 76 females included in this study was enrolled in data processing programs. At the junior college, which had the largest female enrollment of the four schools, 52 of the 55 female students were enrolled in data processing.

TABLE X

SEX AND MARITAL STATUS OF ENTERING STUDENTS

(All Values are Percentages)

	Institution			
	Junior College n=224	Vocational Technical School n=258	Metropolitan Technical Institute n=100	On-campus Technical Institute n=142
Male	75	96	93	98
Female	25	4	7	2
Married	5	19	25	13
Single	95	81	75	87

By institution, percentages of married students were: junior college, five per cent; vocational technical school, 19 per cent; metropolitan technical institute, 25 per cent; and on-campus technical institute, 13 per cent. These data tend to indicate that the metropolitan technical institute and the vocational technical school served a higher percentage of married students than the other two institutions. Of the four institutions the junior college technician education programs served the smallest percentage of married students.

Previous Military Experience of Entering Male Students

By institution, percentages of male students included in the study who were veterans were: junior college, seven per cent; vocational technical school, 15 per cent; metropolitan technical institute, 26 per cent; and on-campus technical institute, 11 per cent.

Educational Attainment of Entering Students

Educational attainment of entering students is shown in Table XI. At all institutions a majority of the entering students had finished high school prior to enrolling in the technical program. At the junior college all entering technician education students had finished high school. Percentages for the vocational technical school, metropolitan technical institute, and on-campus technical institute were 97, 98, and 99 per cent, respectively. In addition to being high school graduates a number of the entering students had completed some college credit prior to enrolling in the technician education program. By institution these percentages were: junior college, 13 per cent;

vocational technical school, 14 per cent; metropolitan technical institute, 26 per cent; and on-campus technical institute, 35 per cent.

TABLE XI

PERCENTAGES OF STUDENTS ATTAINING
SPECIFIED EDUCATIONAL LEVELS

	Institution			
Educational Attainment	Junior College n=223	Vocational Technical School n=258	Metropolitan Technical Institute n=100	On-campus Technical Institute n=141
Less than high school graduation	0	3	2	1
High school graduate	87	83	72	64
Some college	13	14	26	35

In terms of serving students who had previously been to college the technician education programs at the junior college and the vocational technical school were very similar. When this factor was considered the metropolitan technical institute and the on-campus technical institute were somewhat similar to each other, but different from the junior college and vocational technical school.

Approximately 19 per cent of all respondents had attended college prior to enrolling in technician education programs. The 140 students in this category had completed 3,978 semester credit hours. Table XII shows the range and average number of semester hours completed. The average number of hours completed by the on-campus technical institute group was higher than the other three groups.

TABLE XII

COLLEGE CREDIT COMPLETED BY ENTERING STUDENTS PRIOR TO ENROLLING IN A TECHNICAL PROGRAM

	Institution			
	Junior College n=29	Vocational Technical School n=36	Metropolitan Technical Institute n=25	On-campus Technical Institute n=49
Range of semester hours completed	2-35	2-64	1-59	3-99
Average number of semester hours completed	22	25	24	37

Year Entering Students Left High School

Entering students were asked on the Student Information Form I to indicate the year they left or finished high school. The distribution of these responses is given in Table XIII. These data indicate that more of the entering technician education students at the junior college left or finished high school in 1967 than at any of the other schools. By institution, percentages were: junior college, 81 per cent; vocational technical school, 63 per cent; metropolitan technical institute 55 per cent; and on-campus technical institute, 51 per cent. These data correspond with the data relative to age which showed that the entering technician education students at the junior college tended to be younger. The metropolitan technical institute had the largest percentage of students who finished or left high school prior to 1964. By institution,percentages were: junior college, three per cent; vocational technical school, 18 per cent; metropolitan technical institute, 23 per cent; and on-campus technical institute, 13 per cent.

TABLE XIII

PERCENTAGES OF STUDENTS WHO LEFT OR FINISHED HIGH SCHOOL IN SPECIFIED YEARS

	Institution			
Year Left or Finished High School	Junior College n=223	Vocational Technical School n=257	Metropolitan Technical Institute n=100	On-campus Technical Institute n=142
1967	81	63	55	51
1966	13	11	12	17
1965	3	4	4	15
1964	0	4	6	4
Prior to 1964	3	18	23	13

Size of High School Graduating Class

Data summarized in Table XIV indicate that more of the entering students at the vocational technical school came from small high schools (fewer than 50 in the graduating class) than did students at the other three institutions. Except for the vocational technical school a majority of the entering students at all institutions graduated from large high schools (more than 100 in the graduating class). One-half of the entering students at the vocational technical school graduated from large high schools.

TABLE XIV

PERCENTAGES OF STUDENTS FROM HIGH SCHOOL GRADUATING CLASSES OF SPECIFIED SIZE

	Institution			
Size of High School Graduating Class	Junior College n=221	Vocational Technical School n=248	Metropolitan Technical Institute n=95	On-campus Technical Institute n=141
Fewer than 50	17	30	15	24
50 to 99	21	20	8	16
100 or more	62	50	77	60

High School Vocational Education Enrollments of Entering Students

Percentages of entering technician education students who had been enrolled in a high school vocational program were: junior college, 44 per cent; vocational technical school, 49 per cent; metropolitan technical institute, 43 per cent; and on-campus technical institute, 42 per cent. On this factor the entering students at the four institutions were similar. Data relative to the distribution of the enrollments in vocational programs by type of program are given in Table XV.

Geographic Origin of Entering Students

Geographic origins of entering technician education students are shown in Table XVI. A majority (63 per cent) of the entering students at the metropolitan technical institute attended high school in the county in which the institution was located. These percentages for the other institutions were: junior college, 26 per cent; vocational technical school, ten per cent; and on-campus technical institute, 12 per cent. Percentages of students who attended out-of-state high schools for the junior college, vocational technical school,and metropolitan technical institute were very similar, these were seven, nine, and eight per cent respectively. On this measure the entering students at the on-campus technical institute were somewhat different from the students at the other institutions. Nineteen per cent of the on-campus technical institute students attended out-of-state high schools.

TABLE XV

PERCENTAGES OF ENTERING STUDENTS WHO HAD HIGH SCHOOL VOCATIONAL EDUCATION BY TYPE OF PROGRAM

	Institution			
Type of Program	Junior College n=221	Vocational Technical School n=257	Metropolitan Technical Institute n=100	On-campus Technical Institute n=140
Vocational Agriculture	9	19	9	16
Distributive Education	4	1	3	1
Trade & Industrial Education	21	22	11	13
Technical	5	4	19	11
Other	5	3	1	1

TABLE XVI

PERCENTAGES OF STUDENTS WHO CAME FROM SELECTED GEOGRAPHICAL AREAS

	Institution			
Origin of Students	Junior College n=224	Vocational Technical School n=258	Metropolitan Technical Institute n=100	On-campus Technical Institute n=142
County in which institution is located	26	10	63	12
Contiguous counties	12	25	7	8
Other state counties	55	56	22	61
Out-of-state	7	9	8	19

Percentages of students who attended high school in counties contiguous to the county in which the institution was located were: junior college, 12 per cent; vocational technical school, 25 per cent; metropolitan technical institute, seven per cent; and on-campus technical institute, eight per cent. When examining these data it should be noted that the county in which the junior college was located was in the northeastern corner of the state and only had two contiguous counties. The vocational technical school was located in a county that had six contiguous counties, one of which was the state's second largest county in terms of population. The county in which the metropolitan technical institute was located was the state's largest county in terms of population, and had five contiguous counties. The county in which the on-campus technical institute was located had five contiguous counties.

The percentages of entering students from the state's largest county were: junior college, two per cent; vocational technical school, four per cent; metropolitan technical institute, 63 per cent; and on-campus technical institute, eight per cent. Percentages of students from the state's second largest county were: junior college, 27 per cent; vocational technical school 12 per cent; metropolitan technical institute, two per cent; and on-campus technical institute, ten per cent.

By combining the entering technician education students who came from the county in which the institution was located with the entering students from the state's second largest county it was found that 53 per cent of the entering technician students at the junior college came from these two counties.

By institution, the total number of counties from which students came was: junior college, 19; vocational technical school, 54; metropolitan technical institute, 20; and on-campus technical institute, 34.

Distances from the high school last attended to the post-high school institution entering technician education students attended are shown in Table XVII. The percentages of students who attended high school in the town where the post-high school institution was located were: junior college, 22 per cent; vocational technical school, nine per cent; metropolitan technical institute, 57 per cent; and on-campus technical institute, 12 per cent. More of the entering students at the metropolitan technical institute and the junior college were attending school in the town where they had attended high school than students at the other two institutions. Looking at the percentages of students who were attending an institution located at least 200 miles from where the students last attended high school it is found that more of the students attending the vocational technical school and the on-campus technical institute were in this category than were students from the other two institutions.

TABLE XVII

PERCENTAGES OF STUDENTS WHO ATTENDED HIGH SCHOOLS LOCATED VARIOUS DISTANCES FROM THE POST-HIGH SCHOOL INSTITUTION

	Institution			
Distance in Miles	Junior College n=222	Vocational Technical School n=257	Metropolitan Technical Institute n=99	On-campus Technical Institute n=142
Same town	22	9	57	12
Less than 25	16	9	11	8
25 to 50	7	19	8	9
50 to 100	33	23	8	31
100 to 200	15	20	9	20
Over 200	7	20	7	20

Place of Residence While Attending School

Item number 31 of the Student Information Form I asked: "How close is the place where you presently live to the school?" On the questionnaire there were seven possible choices available to the respondent. In analyzing the data responses to choices four and five, and choices six and seven were combined. Table XVIII summarizes the responses to item number 31.

TABLE XVIII

PERCENTAGES OF STUDENTS LIVING SPECIFIED DISTANCES FROM THE SCHOOL WHILE ATTENDING THE TECHNICAL PROGRAM

	Institution			
Distance	Junior College n=224	Vocational Technical School n=258	Metropolitan Technical Institute n=100	On-campus Technical Institute n=142
I live on campus	60	62	0	50
Less than 1 mile away	7	4	9	32
At least 1 but less than 5 miles away	14	12	33	8
At least 5 but less than 30 miles away	12	9	53	6
At least 30 miles away	7	13	4	4

In terms of the percentages of students living on campus the entering technician education students at the junior college and vocational technical school were very similar. These data indicate that more of the on-campus technical institute respondents lived on campus or within one mile than did the entering students at the other three institutions. More of the entering students at the vocational technical institution lived more than 30 miles from the school than did the entering students at the other three institutions.

Entering Students' Perceptions Concerning Finances

Three items on the Student Information Form I dealt with the students' perceptions concerning financial aspects of the training program. First, the students were asked how much the program would cost; second, how they expected to pay for the program; and third, how much difficulty they expected to have in financing the program. Responses to the question relative to the total expected costs are summarized in Table XIX. Distribution of the responses for the students at the junior college, vocational technical school, and the metropolitan technical institute tended to be similar. Students entering the on-campus technical institute tended to choose responses from the high end of the scale.

TABLE XIX

PERCENTAGES OF STUDENTS WHO EXPECTED TRAINING COSTS TO BE AT SELECTED LEVELS

	Institution			
Expected Total Costs	Junior College n=220	Vocational Technical School n=255	Metropolitan Technical Institute n=99	On-campus Technical Institute n=139
Less than $1,000	17	10	13	4
$1,000 to $1,500	24	21	24	9
$1,500 to $2,000	17	16	21	10
$2,000 to $2,500	13	19	17	16
$2,500 to $3,000	7	15	8	16
$3,000 to $4,000	8	12	4	20
Over $4,000	15	8	12	25

Item 34 of the Student Information Form I asked the students to indicate what percentage of their educational costs they expected to pay from each of eight sources. This item proved to be very difficult to many of the students. A majority of the responses to this item were not usable; therefore, the item was not included in the analysis. From the student's questions and comments regarding this item the test administrators formed a subjective impression that many of the students had not given serious consideration to the matter of finances.

Responses to the item concerned with how much trouble the students expect to have in getting enough money to finance the training program are given in Table XX. The distributions of responses to this item for all groups were very similar. A majority of the students in all groups expect that they can get the necessary finances to attend the training program.

TABLE XX

PERCENTAGES OF STUDENTS WHO EXPECTED TROUBLE IN FINANCING THE TRAINING PROGRAM

	Institution			
Expected Trouble With Finances	Junior College n=224	Vocational Technical School n=257	Metropolitan Technical Institute n=99	On-campus Technical Institute n=142
No trouble	26	36	34	33
Some trouble	41	37	37	39
Difficult, but I can make it	28	24	28	24
So difficult I may not be able to finish	4	2	0	3
So difficult I probably will have to quit	0	0	0	0

Consideration Given While in High School to Attending Technical Program

Two items on the Student Information Form I (items 40 and 41) were used to determine the percentages of students who while in high school, had considered attending a technical program. By institution, percentages of students who indicated they had seriously considered while in high school attending the technical program were: junior college, 57 per cent; vocational technical school, 56 per cent; metropolitan technical institute, 44 per cent; and on-campus technical institute, 49 per cent. By institution, percentages of students who indicated that while still in high school they had made the final decision to attend a technical program were as follows: junior college, 52 per cent; vocational technical school, 43 per cent; metropolitan technical institute, 37 per cent; and on-campus technical institute, 42 per cent. These data indicate that higher percentages of the junior college and vocational technical school students gave serious consideration while in high school to attending the technical program than did students from the other two institutions.

Type of Counseling Aid Received by Students

By institution, percentages of students who last attended high schools which had a guidance counselor were: junior college, 78 per cent; vocational technical school, 71 per cent; metropolitan technical institute, 78 per cent; and on-campus technical institute, 78 per cent. Those students who attended high schools in which there was a guidance counselor were asked: "What did he tell you about enrolling in this program?" Responses to this question are summarized in Table XXI.

TABLE XXI

PERCENTAGES OF STUDENTS WHO RECEIVED VARIOUS TYPES OF COUNSELING AID

	Institution			
Type of Aid Given By Counselors	Junior College n=173	Vocational Technical School n=178	Metropolitan Technical Institute n=78	On-campus Technical Institute n=110
Never talked to me about this program	57	49	64	56
Generally encouraged me to attend	22	26	22	27
Generally warned me not to attend	2	0	1	1
Talked to me but neither encouraged nor warned me	19	25	13	16

a. Only those students who attended high schools having counselors are included in this analysis.

A majority of the students in the junior college group and the two technical institute groups who last attended high schools with guidance counselors reported that their counselors had not talked to them about enrolling in a technical program. Forty-nine per cent of the vocational technical school students indicated their counselors had not talked to them about enrolling in a technical program. Combining the students who attended high schools without counselors and those whose counselors did not talk to them about a technical program, it was found that the percentages of students who did not receive counseling aid were (by institution): junior college, 67 per cent; vocational technical school, 65 per cent; metropolitan technical institute, 72 per cent; and on-campus technical institute, 65 per cent. In terms of the percentages of students who had received high school counseling the four groups were similar.

Sources of Information About Technical Programs

Entering students were asked to indicate how they first heard about the technical program in which they were enrolled. Responses by type of school are shown in Table XXII. These data show that the primary source of information concerning the technical program for entering students at all four institutions was the students' friends. A greater percentage of entering students at the junior college learned of the technical program through information from the school through the mail than did students at the other three institutions.

TABLE XXII

PERCENTAGES OF ENTERING STUDENTS FIRST HEARING ABOUT TECHNICAL PROGRAMS FROM SPECIFIED SOURCES

	Institution			
Source	Junior College n=208	Vocational Technical School n=239	Metropolitan Technical Institute n=92	On-campus Technical Institute n=136
An advertisement in a newspaper or magazine	2	1	1	0
Information from the school through the mail	27	8	16	17
Advertisement on TV or radio	1	0	1	0
From a school representative who contacted me	8	6	2	7

TABLE XXII (Continued)

Source	Institution Junior College n=208	Vocational Technical School n=239	Metropolitan Technical Institute n=92	On-campus Technical Institute n=136
From friends of mine	29	37	39	28
From a vocational teacher in high school	7	10	20	11
From a high school teacher other than a vocational teacher	6	4	7	4
From a counselor in high school	10	10	1	9
From someone in the Vocational Rehabilitation office	3	7	0	2
Other	6	17	14	22

Students' Knowledge of Technical Programs in the State

Two items on the Student Information Form I (items 24 and 25) were designed to assess the entering students' knowledge concerning technical programs offered in the state. Item number 24 asked: "Do you know of other Oklahoma schools which offer the same kind of training program in which you are now enrolled?" Percentages of respondents answering "yes" to this question were: junior college, 43 per cent; vocational technical school, 38 per cent; metropolitan technical institute, 33 per cent; and on-campus technical institute, 26 per cent. These data tend to indicate that the junior college technician education students know more about the technical offerings in the state than do technician education students at other institutions. It should be pointed out, however, that 25 per cent of the entering students at the on-campus technical institute were enrolled in programs which were not offered by other institutions in the state.

Item number 25 asked those students who had answered "yes" to item number 24 to list the schools which they knew to have programs which were the same as the one in which they were enrolled. The responses to this item were categorized as "accurate" or "inaccurate" for purposes of analysis. The criteron for categorizing as "accurate" was that more than 50 per cent of the schools listed by the respondent did offer a technical program which was the same as the one in which the respondent was enrolled. Results of this analysis are shown in Table XXIII.

TABLE XXIII

PERCENTAGES OF ENTERING STUDENTS WITH ACCURATE KNOWLEDGE OF OTHER TECHNICAL PROGRAMS OFFERED IN THE STATE

	Institution			
	Junior College n=96	Vocational Technical School n=97	Metropolitan Technical Institute n=33	On-campus Technical Institute n=37
Accurate	31	46	39	57
Inaccurate	69	54	61	43

Percentages of respondents who could name another institution which offered a technical program the same as the one in which they were enrolled were: junior college 13 per cent, vocational technical school, 17 per cent; metropolitan technical institute, 13 per cent; and on-campus technical institute, 15 per cent. These data tend to show that the entering students at the four institutions had similar information concerning technical offerings by other institutions in the state.

Source of Encouragement to Attend School

The students were asked (Student Information Form I, item 44) to indicate who most encouraged them to attend the school in which they were enrolled. Of the ten possible choices to this question the two most popular choices for all groups were: "my relatives", and "nobody encouraged me--I decided by myself." By institution, percentages of students who indicated "parents" as the primary source of encouragement were: junior college, 28 per cent; vocational technical school, 25 per cent; metropolitan technical institute, 19 per cent; and on-campus technical institute, 23 per cent. Percentages, by institution, of students who indicated "nobody" as a primary source of encouragement were: junior college, 38 per cent; vocational technical school, 41 per cent; metropolitan technical institute, 51 per cent; and on-campus technical institute, 48 per cent. It appears that a higher percentage of the junior college students were encouraged most by their parents than was the case for students in the other three groups. By institution, the numbers of students who gave useable responses to this item were: junior college, 209; vocational technical school, 237; metropolitan technical institute, 94; and on-campus technical institute, 128. All students in each group responded to this item, but some students marked two choices.

Forms with more than one choice marked were excluded from the analysis. Distributions of responses to item 44 of the Student Information Form I are shown in Table XXIV.

TABLE XXIV

PERCENTAGES OF STUDENTS INDICATING SELECTED SOURCES OF ENCOURAGEMENT TO ATTEND SCHOOL

	Institution			
Source	Junior College n=209	Vocational Technical School n=237	Metropolitan Technical Institute n=94	On-campus Technical Institute n=128
My parents	28	26	19	23
Relatives	5	5	2	4
Friends about my age or not much older	14	8	8	7
Friends of my family	1	1	2	2
A previous employer of mine	0	1	1	2
The people here at the school who operate it or work for it	2	0	3	2
A teacher or counselor in high school	7	9	7	7
Somebody in a government agency (such as Rehab, Indian Affairs, VA, etc.)	0	4	0	0
Nobody encouraged me--I decided all by myself	38	41	51	48
Other	5	5	7	5

Educational Expectations

Item number 22 of the Student Information Form I asked: "What is the highest education degree you expect to complete?" Distributions of the responses given to this item are shown in Table XXV. By institution, percentages of entering students who expected to complete at least a baccalaureate degree were: junior college, 57 per cent; vocational technical school, 19 per cent; metropolitan technical institute, 70 per cent; and on-campus technical institute, 63 per cent.

TABLE XXV

PERCENTAGES OF ENTERING STUDENTS WHO EXPECTED TO COMPLETE SPECIFIED DEGREES

	Institution			
Degree	Junior College n=218	Vocational Technical School n=247	Metropolitan Technical Institute n=99	On-campus Technical Institute n=142
Certificate of Completion	17	69	6	2
Associate Degree	26	11	23	34
Baccalaureate Degree	45	16	52	52
Master's Degree	9	2	15	9
Doctor's Degree	3	1	3	2

In Table XXVI the fields of study in which the students expected to study for the baccalaureate degree are shown. As shown in this table the field of study chosen most often by junior college technician education students was "four-year technology." This was also true for the on-campus technical institute entering students. The most popular choice for vocational technical school students and metropolitan technical institute students was engineering. A majority of the entering students at the metropolitan technical institute who expected to pursue a baccalaureate degree choose engineering as the field in which they expected to study.

TABLE XXVI

PERCENTAGES OF STUDENTS WHO PLANNED TO STUDY FOR A BACCALAUREATE DEGREE IN SPECIFIC FIELDS

	Institution			
Field of Study	Junior College n=224	Vocational Technical School n=258	Metropolitan Technical Institute n=100	On-campus Technical Institute n=142
Four-year Technology	24	4	15	38
Teacher Education	3	1	0	10
Engineering	12	9	41	10
Business	13	3	6	1
Other	5	2	8	4
Do not plan to complete a bachelors degree	43	80	29	36

Students' Expression of Confidence Concerning Ability to Complete Program

On item number 55 of the Student Information Form I the students were asked to indicate how confident they were that they could complete the training program in which they were enrolled. Responses to this item are summarized in Table XXVII. By combining the percentages who responded as "very confident" and "confident" it is found that all institutional groups were similar on this measure. The combined percentages by institution were: junior college, 87 per cent; vocational technical school, 85 per cent; metropolitan technical institute, 89 per cent; and on-campus technical institute, 92 per cent. These data indicate that the on-campus technical institute students were the most confident of the four groups. The vocational technical school students appeared to express less confidence than did the other three groups. However, a substantial majority of all groups expressed confidence in their ability to complete the program.

TABLE XXVII

PERCENTAGES OF ENTERING STUDENTS WHO EXPRESSED VARIOUS LEVELS OF CONFIDENCE CONCERNING ABILITY TO COMPLETE THE PROGRAM

	Institution			
Expression of Confidence	Junior College n=224	Vocational Technical School n=258	Metropolitan Technical Institute n=100	On-campus Technical Institute n=142
Very confident	45	44	61	45
Confident	42	41	28	47
Unsure	12	14	11	8
Doubtful	1	0	0	0
Very doubtful	0	0	0	0

Occupational Decisions

Data relative to when the entering students decided to enter the occupation for which they were training are summarized in Table XXVIII. These data tend to indicate that a higher percentage of respondents from the junior college were still exploring and had not made an occupational decision than was the case for students at the other three institutions. Of the four groups, the smallest percentage of respondents who were "still exploring" was found at the vocational technical school.

TABLE XXVIII

PERCENTAGES OF STUDENTS WHO DECIDED TO ENTER THE OCCUPATION FOR WHICH THEY WERE TRAINING AT SPECIFIED TIMES

	Institution			
When Decision Made	Junior College n=223	Vocational Technical School n=257	Metropolitan Technical Institute n=100	On-campus Technical Institute n=142
Not made — still exploring	23	10	13	15
Less than one month before coming to school	20	16	7	9
More than one month but less than six months before coming to school	35	37	31	38
At least one year before coming to school	22	37	49	38

A higher percentage of students from the metropolitan technical institute indicated they had made an occupational decision at least one year before coming to school than was the case for students at the other three institutions. Of the four groups, the one with the smallest percentage of students giving this response was the junior college group.

Students' Interest in the Occupation

Students included in the study were asked how interested they were in the occupation for which they were training. Responses to this item are summarized in Table XXIX. By institution, percentages of the respondents who indicated they were "very interested" were: junior college, 46 per cent; vocational technical school, 55 per cent; metropolitan technical institute, 67 per cent; and on-campus technical institute, 53 per cent. By institution, the combined percentages of respondents who were "very interested" and "interested" were: junior college, 91 per cent; vocational technical school, 95 per cent; metropolitan technical institute, 97 per cent; and on-campus technical institute, 99 per cent. These data tend to indicate that a substantial portion of all four groups of students were interested in the occupations for which they were preparing. The junior college group appeared to express less interest than did the other three groups.

TABLE XXIX

PERCENTAGES OF STUDENTS WHO EXPRESSED SPECIFIED LEVELS OF INTEREST IN THE OCCUPATIONS FOR WHICH THEY WERE PREPARING

	Institution			
Interest	Junior College n=223	Vocational Technical School n=257	Metropolitan Technical Institute n=100	On-campus Technical Institute n=142
Very interested	46	55	67	53
Interested	45	40	30	46
Mildly interested	7	4	2	1
Little interested	1	1	1	0
Not interested	0	0	0	0

Students' Expectations Concerning Employment

A summary of the entering students' responses to item 52 concerning how they felt about their chances of getting a job upon completion of their training program is given in Table XXX. Approximately 15 per cent of the students in each group indicated they already knew where they would be working upon completion of their training programs. The percentage of those indicating they felt their employment chances were good varied from a low of 46 per cent of the junior college respondents to a high of 75 per cent of the on-campus technical institute respondents. Combining the "fair" and "poor" responses it was found that a higher percentage of the junior college respondents were in this category than were students at the other three schools. Also, the junior college group had the highest percentage of students indicating they had never considered their chances of getting a job.

TABLE XXX

PERCENTAGES OF STUDENTS WHO EXPRESSED SPECIFIED LEVELS OF CONFIDENCE CONCERNING THEIR CHANCES OF GETTING A JOB IN TECHNICAL FIELD

	Institution			
Chances for Employment	Junior College n=224	Vocational Technical School n=258	Metropolitan Technical Institute n=100	On-campus Technical Institute n=142
Excellent--I already know where I will be working	14	15	16	15
Good--this school places their graduates with little or no trouble	46	72	66	75

TABLE XXX (Continued)

Chances for Employment	Junior College n=224	Vocational Technical School n=258	Metropolitan Technical Institute n=100	On-campus Technical Institute n=142
Fair--it seems some graduates get jobs but others do not	19	8	9	4
Poor--I guess it is strictly up to me to find my job	4	0	2	1
I don't know--I have never considered it	17	5	7	5

Students involved in the study were asked how much money they expected to make per month on their first job after completing the training program. Table XXXI summarizes their replies. The largest difference among the groups on a single response was found on the response "I have no idea." On this response the percentages of vocational technical school, metropolitan technical institute, and on-campus technical institute students were very similar, while the percentages of junior college students marking this response was approximately twice as large as any of the other groups.

TABLE XXXI

PERCENTAGES OF STUDENTS WHO EXPRESSED SPECIFIED EXPECTATIONS CONCERNING STARTING SALARY

	Institution			
Expected starting salary in dollars per month	Junior College n=223	Vocational Technical School n=257	Metropolitan Technical Institute n=100	On-campus Technical Institute n=142
300-399	12	14	9	7
400-499	25	34	35	20
500-599	15	20	18	37
600-699	7	9	14	13
Over 700	4	3	7	6
I have no idea	36	20	17	16

Socioeconomic Background

Six factors relative to socioeconomic background were examined. These factors were: father's occupation, father's education, mother's education, mother's employment, size of town in which last high school attended was located, and place of residence while attending high school. Analysis of these six factors is reported in this section.

Father's Occupation

Students were asked to indicate on the Student Information Form I what their father's occupation "is" or "was." When administering the instrument, the person in charge explained to students that the "was" applied to those students with deceased fathers.

For purposes of data analysis each occupation was given a socioeconomic index value using the index developed by Duncan (60). By institution, the percentages of respondents who gave usable responses to this item were: junior college, 86 per cent; vocational technical school, 93 per cent; metropolitan technical institute, 88 per cent; and on-campus technical institute, 97 per cent.

An analysis of variance (62) was used to statistically compare the index values of the four groups, thus testing the hypothesis that no significant differences existed among the mean scores of the four groups. Preliminary to the analysis of variance, a test for homogeneity of variances, as outlined by Bartlett (61, p. 95) was made. The corrected Chi Square (with three degrees of freedom) generated by this test was 3.57. The hypothesis of homogeneous variances could not be rejected at the .25 level of significance.

From the analysis of variance an F ratio of 6.50 was obtained. This value was found to have an associated probability value of less than .01. The null hypothesis of no difference in socioeconomic background among the groups was rejected. The mean socioeconomic index values for the four groups were: junior college, 35.93; vocational technical school, 31.06; metropolitan technical institute, 38.61; and on-campus technical institute, 40.57.

Using the Newman-Kuels method to probe the nature of differences between group means two significant differences were found. The mean socioeconomic index values for vocational technical school students was different at the .01 level of significance from the metropolitan technical institute students and from the on-campus technical institute students.

The difference between the mean socioeconomic index values for the vocational technical school group and the junior college group approached significance at the .05 level. The difference between these two means was 4.87--a difference of 4.98 would be significant at the .05 level. These data tend to indicate that the vocational technical school students came from a lower socioeconomic background than did students in the other three groups. Differences between all means are shown in Table XXXII.

TABLE XXXII

DIFFERENCES BETWEEN MEAN SOCIOECONOMIC INDEX VALUES

		Institution			
Groups[a]		Vocational Technical School	Junior College	Metropolitan Technical Institute	On-campus Technical Institute
	Means	31.06	35.93	38.61	40.57
Vocational Tech. Inst.	31.06	---	4.87	7.55**	9.51**
Junior College	35.93	---	---	2.68	4.64
Metropolitan Tech. Inst.	38.61	---	---	---	1.96
On-campus Tech. Inst.	40.57	---	---	---	---

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[a] The harmonic mean of the four groups was used in testing differences between means.

** $p \leq .01$

Educational Attainment of Fathers

Table XXXIII summarizes by institution the educational attainment of students' fathers. By institution, the percentages of students whose fathers had completed less than 12 years of school were: junior college, 42 per cent; vocational technical school, 53 per cent; metropolitan technical institute, 32 per cent; and on-campus technical institute, 28 per cent. From these data it appears that fathers of vocational technical school students have the lowest levels of educational attainment, followed by fathers of junior college, metropolitan technical institute, and on-campus technical institute students, in that order.

TABLE XXXIII

PERCENTAGES OF STUDENTS WHOSE FATHERS HAD ATTAINED SPECIFIC EDUCATIONAL LEVELS

	Institution			
Years of School Completed	Junior College n=221	Vocational Technical School n=244	Metropolitan Technical Institute n=98	On-campus Technical Institute n=135
9 or Less	33	43	24	24
10-11	9	10	8	4
12	30	35	38	41
13-15	18	6	21	16
16	9	5	6	13
More than 16	1	1	2	2

Educational Attainment of Mothers

Table XXXIV shows the educational attainment of the entering students' mothers. By institution, the percentages of students whose mothers had completed 12 years of school were: junior college, 50 per cent; vocational technical school, 45 per cent; metropolitan technical institute, 50 per cent; and on-campus technical institute, 50 per cent. The vocational technical school group had a higher percentage (39 per cent) of mothers who had completed less than 12 years of school than did the other three groups. The junior college group had the second highest percentage (33 per cent) of mothers who had completed less than 12 years of school. The percentages of students at the junior college and vocational technical school whose mothers had completed more than 12 years of school were similar--18 and 16 per cent, respectively. Also, the percentages of students in the metropolitan technical institute and the on-campus technical institute whose mothers had completed more than 12 years of school were similar--24 and 28 per cent, respectively.

TABLE XXXIV

PERCENTAGES OF STUDENTS WHOSE MOTHERS HAD ATTAINED SPECIFIC EDUCATIONAL LEVELS

	Institution			
Years of School Completed	Junior College n-223	Vocational Technical School n=250	Metropolitan Technical Institute n=99	On-campus Technical Institute n=139
9 or Less	16	21	13	15
10-11	17	18	12	6
12	50	45	50	50

TABLE XXXIV (Continued

Years of School Completed	Junior College n=223	Vocational Technical School n=250	Metropolitan Technical Institute n=99	On-campus Technical Institute n=139
	Institution			
13-15	11	10	17	18
16	6	6	5	9
More than 16	1	0	2	1

Size of Town in Which Students Last Attended High School

Data concerning the size of town in which the respondents last attended high school are presented in Table XXXV. Percentages of junior college and vocational technical school students who last attended high schools located in towns of less than 1,000 population were approximately 20 per cent and were higher than the other two institutions. The smallest percentage (six per cent) of students in this category was found in the metropolitan technical institute group. The percentage of the vocational technical school students who attended high schools located in towns of "less than 10,000" was higher than the percentages at the other three schools. By institution,percentages in this category were: junior college, 44 per cent; vocational technical school, 60 per cent; metropolitan technical institute, 24 per cent; and on-campus technical institute, 47 per cent.

The students were asked whether or not they lived on a farm while attending high school. Percentages of students, by institution, who indicated they lived on a farm while attending high school were:

junior college, 23 per cent; vocational technical school, 31 per cent; metropolitan technical institute, 16 per cent; and on-campus technical institute, 28 per cent.

TABLE XXXV

PERCENTAGES OF STUDENTS WHO LAST ATTENDED HIGH SCHOOLS IN TOWNS OF THE SIZES LISTED

	Institution			
Size of Town	Junior College n=220	Vocational Technical School n=257	Metropolitan Technical Institute n=99	On-campus Technical Institute n=142
Less than 1,000	19	20	6	12
1,000 to 10,000	25	40	18	35
10,000 to 100,000	35	30	30	37
Over 100,000	21	10	45	16

Employment of Mothers

Item number 16 of the Student Information Form I asked the respondents to list their mothers' occupations. For purposes of the analysis these were coded as "housewife" or "employed outside the home." By institution, percentages of students whose mothers were employed "outside the home" were: junior college, 38 per cent; vocational technical school, 39 per cent; metropolitan technical institute, 47 per cent; and on-campus technical institute, 42 per cent.

Scholastic Aptitude

Three scores from the Technical Scholastic Test (Technical, Scholastic, and Total) and three scores from the Nelson-Denny Reading

Test (Vocabulary, Comprehension, and Total) were used in considering the question of differences in scholastic aptitude among the groups. In this section analyses of the data derived from the standardized tests are reported.

Preliminary Tests

Each of the six scholastic aptitude variables was tested for homogeneous variances, using Bartlett's test (61, p. 95) prior to the analysis of variance. The hypothesis of homogeneous variances could not be rejected at the .05 level of significance for the Nelson-Denny Comprehension and Total Scores and for the Technical Scholastic Test Technical and Total scores. This hypothesis was rejected at the .05 level of significance for the Technical Scholastic Test Scholastic score and at the .01 level for the Nelson-Denny Vocabulary score. Results of Bartlett's test are shown in Table XXXVI.

TABLE XXXVI

BARTLETT'S TEST FOR HOMOGENEITY OF VARIANCE

Variable	Degrees of Freedom	Corrected Chi Square
Nelson-Denny		
Vocabulary	3	14.60**
Comprehension	3	4.56
Total	3	3.74
Technical Scholastic Test		
Technical	3	3.67
Scholastic	3	8.27*
Total	3	5.15

* $p \leq .05$

** $p \leq .01$

As discussed in Chapter III the Nelson-Denny Reading Test scores for the two technical institute groups were obtained from school records. Test scores for all of the entering students were not available. The primary reason for this was that transfer students were not required to take the reading test. Percentages of students for whom Nelson-Denny Reading Test scores were available were: metropolitan technical institute, 70 per cent; and on-campus technical institute, 80 per cent.

To determine whether the students for whom reading scores were available were different from those for whom reading scores were not available,the mean Technical Scholastic Test Vocabulary and Total scores for the two groups were compared by institution using an analysis of variance. In both cases the null hypothesis of no differences between groups could not be rejected at the .01 level of significance. For the metropolitan technical institute groups an _F_ ratio of .07 was obtained for the Technical Scholastic Test Vocabulary score, and an _F_ ratio of .58 was obtained for the Technical Scholastic Total score. These values were found to have an associated probability value of less than .01. For the on-campus technical institute groups an _F_ ratio of 5.72 was obtained for the Technical Scholastic Test Vocabulary score, and an _F_ ratio of 2.91 was obtained for the Technical Scholastic Test Total score. These values were found to have an associated probability of less than .01.

Analysis of Scholastic Aptitude Variables

In this study six standardized test scores were used as measures of scholastic aptitude: Technical Scholastic Test--

Technical, Scholastic, and Total scores; and Nelson-Denny Reading Test--Vocabulary, Comprehension, and Total scores.

The null hypothesis that mean scores on the six measures of scholastic aptitude would not differ significantly among the groups was tested using an analysis of variance. Calculated F ratios indicated that the groups were significantly different on all six measures. The mean sums of squares, F ratios, and mean scores on the six variables are shown in Table XXXVII.

Since significant F's were found, the Newman-Kuels (62) method was used to examine the six possible differences between the four group means. The groups were of unequal sizes, therefore, the harmonic mean of the four groups was used in making the statistical tests.

Four of the six differences between mean TST Technical scores were found to be statistically significant. On this variable the mean scores for the junior college and vocational technical school groups were significantly different (at the .01 level) from those of the metropolitan technical institute and on-campus technical institute groups. The mean scores for the junior college group and the vocational technical school group were not statistically different at the .05 level. Also, the difference between the mean scores of the two technical institute groups was not significant at the .05 level. Differences between all pairs of means are shown in Table XXXVIII.

TABLE XXXVII

ANALYSIS OF VARIANCE FOR TECHNICAL SCHOLASTIC TEST AND NELSON-DENNY READING TEST SCORES FOR ALL GROUPS

Scale	Mean Score by Type of Institution Junior College	 Voc. Tech. School	 Metro. Tech. Inst.	 On-campus Tech. Inst.	Source	df	M. S.	F
TST								
Technical	35.58	37.39	42.21	44.85	Between	3	3048.94	19.26**
					Within	715	158.31	
Scholastic	42.98	42.03	49.88	50.99	Between	3	3526.68	26.55**
					Within	715	132.35	
Total	78.56	79.39	92.09	95.84	Between	3	12785.68	26.98**
					Within	715	473.75	
Nelson-Denny								
Vocabulary	26.65	22.94	29.89	29.12	Between	3	1544.58	13.64**
					Within	656	113.13	
Comprehension	34.60	30.88	36.18	37.69	Between	3	1468.05	10.15**
					Within	656	144.58	
Total	61.24	53.79	65.94	66.86	Between	3	5973.83	13.74**
					Within	656	433.80	

** $p \leq .01$

TABLE XXXVIII

DIFFERENCES BETWEEN MEAN TST TECHNICAL SCORES FOR ALL GROUPS

Groups		Junior College	Vocational Technical School	Metropolitan Technical Institute	On-campus Technical Institute
	Means	35.58	37.39	42.21	44.85
Junior College	35.58	---	1.81	6.63**	9.27**
Vocational Tech. Sch.	37.39	---	---	4.82**	7.46**
Metropolitan Tech. Inst.	42.21	---	---	---	2.64
On-campus Tech. Inst.	44.85	---	---	---	---

** $p \leq .01$

Four of the six differences between mean TST Scholastic scores were found to be statistically significant. Significant differences (at the .01 level) were found between the mean scores of the junior college and vocational technical school groups and the two technical institute groups. Differences between all pairs of means are shown in Table XXXIX.

Four of the six differences between mean TST Total scores were found to be statistically significant. Means of the vocational technical school and junior college groups were significantly different (at the .01 level) from the two technical institute groups. Differences between all pairs of means are shown in Table XL.

TABLE XXXIX

DIFFERENCES BETWEEN MEAN TST SCHOLASTIC SCORES FOR ALL GROUPS

		Institution			
Groups		Vocational Technical School	Junior College	Metropolitan Technical Institute	On-campus Technical Institute
	Means	42.03	42.98	49.88	50.99
Vocational Tech. Sch.	42.03	---	.95	7.85**	8.96**
Junior College	42.98	---	---	6.90**	8.01**
Metropolitan Tech. Inst.	49.88	---	---	---	1.11
On-campus Tech. Inst.	50.99	---	---	---	---

** $p \leq .01$

TABLE XL

DIFFERENCES BETWEEN MEAN TST TOTAL SCORES FOR ALL GROUPS

		Institution			
Groups		Junior College	Vocational Technical School	Metropolitan Technical Institute	On-campus Technical Institute
	Means	78.56	79.39	92.09	95.84
Junior College	78.56	---	.83	13.53**	17.28**
Vocational Tech. Sch.	79.39	---	---	12.70**	16.45**
Metropolitan Tech. Inst.	92.09	---	---	---	3.75
On-campus Tech. Inst.	95.84	---	---	---	---

** $p \leq .01$

On the three TST scores used as measures of scholastic aptitude the vocational technical school and junior college groups appeared to be very similar. The two technical institute groups were similar to each other but different from the other two groups.

Five of the six differences between mean Nelson-Denny Vocabulary scores were statistically significant. The only difference which was not statistically significant was between the two technical institute groups. Differences between all pairs of means are shown in Table XLI.

TABLE XLI

DIFFERENCES BETWEEN MEAN NELSON-DENNY VOCABULARY TEST SCORES FOR ALL GROUPS

		Institution			
Groups		Vocational Technical School	Junior College	On-campus Technical Institute	Metropolitan Technical Institute
	Means	22.94	26.65	29.12	29.89
Vocational Tech. Sch.	22.94	---	3.71**	6.18**	6.95**
Junior College	26.65	---	---	2.47*	3.24**
On-campus Tech. Inst.	29.12	---	---	---	.77
Metropolitan Tech. Inst.	29.89	---	---	---	---

* $p \leq .05$

** $p \leq .01$

Four of the differences between mean Nelson-Denny Comprehension scores were statistically significant. On this variable the vocational technical school group was significantly different from the junior college group (at the .05 level) and from the two technical institute groups at the .01 level. The fourth significant difference (at the .05 level) was between the junior college group and the metropolitan technical institute group. Differences between all pairs of means are shown in Table XLII.

TABLE XLII

DIFFERENCES BETWEEN MEAN NELSON-DENNY COMPREHENSION TESTS SCORES FOR ALL GROUPS

		Institution			
Groups		Vocational Technical School	Junior College	Metropolitan Technical Institute	On-campus Technical Institute
	Means	30.89	34.60	36.19	37.69
Vocational Tech. Sch.	30.89	---	3.71*	5.30**	6.80**
Junior College	34.60	---	---	1.59	3.09*
Metropolitan Tech. Inst.	36.19	---	---	---	1.50
On-campus Tech. Inst.	37.69	---	---	---	---

* $p \leq .05$

** $p \leq .01$

Five of the differences between mean Nelson-Denny Total scores were statistically significant. The only difference which was not statistically significant was between the two technical institute groups. Differences between all pairs of means are shown in Table XLIII.

TABLE XLIII

DIFFERENCES BETWEEN MEAN NELSON-DENNY TOTAL TEST SCORES FOR ALL GROUPS

		Institution			
Groups		Vocational Technical School	Junior College	Metropolitan Technical Institute	On-campus Technical Institute
	Means	53.79	61.24	65.94	66.87
Vocational Tech. Sch.	53.79	---	7.48**	12.15**	13.08**
Junior College	61.24	---	---	4.70*	5.63*
Metropolitan Tech. Inst.	65.94	---	---	---	.93
On-campus Tech. Inst.	66.87	---	---	---	---

* $p \leq .05$

** $p \leq .01$

On these three measures of scholastic aptitude the vocational technical school group was the lowest and was significantly different from the other three groups. The junior college group, while significantly higher than the vocational technical school group, was significantly lower than the two technical institute groups. The differences between the two technical institute groups were not significant.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The problem with which this study was concerned was the lack of descriptive information relative to students served by technician education programs at different types of post-high school institutions. Design of effective technician education programs has been impeded by the limited amount of available information concerning the students best served by these programs. Also, proper counseling of students has been hampered by the lack of information regarding the characteristics of students served by technician education programs at different types of institutions. This chapter includes a summary of the study, conclusions, and recommendations.

Summary

The purpose of this study was to identify differences and similarities among entering technician education students at four post-high school institutions. Student characteristics thought to be important for educational planning and student guidance were examined in the study.

Three research questions were considered in the study. (1) Do students entering technician education programs at different types of institutions have different personal and social background characteristics? (2) Do students entering technician education programs at different types of institutions come from different socioeconomic backgrounds? (3) Do students entering technician education programs at different types of institutions differ on measures of scholastic aptitude?

Data used in considering the research questions were collected from 724 students at four post-high school institutions. Subjects utilized in this study were selected from the four participating institutions using the following criteria: (1) They were enrolled in the technician education program for the first time in the 1967 fall semester, and (2) were enrolled as full-time, day-time students. The four post-high school institutions selected for the study were: a public supported residential junior college, a public supported residential vocational technical school, a public supported non-residential technical institute located in a metropolitan area, and a public supported technical institute located on a state university campus. These institutions were selected primarily because of their diverse characteristics and because they had established technician education programs. All programs at the two technical institutes were selected for the study. Programs at the vocational technical school and the junior college which were reimbursed by the Technical Education Division of the State Department of Vocational-Technical Education were selected for the study. Included in the study were: 224 junior college students, 258 vocational technical school students, 100 metropolitan technical institute students, and 142 on-campus technical institute students.

Two standardized instruments and a questionnaire were used to obtain data for the study. The Technical Scholastic Test and the Nelson-Denny Reading Test were used to obtain data relative to scholastic aptitude. The questionnaire was used to gather data relative to a number of personal and social attributes.

Data collection was completed during the first two weeks of the 1967 fall semester. All data were collected in group settings with the assistance of teachers and administrators at the four institutions. All standardized tests were hand scored and scores were punched into cards for machine analysis. Data from the questionnaire were also punched into cards for machine analysis. The analysis of data was completed during the 1967 fall semester.

Junior college technician education students tend to be younger than the technician education students at the other three schools. The junior college group also had a higher percentage of 1967 high school graduates.

A majority (89 per cent) of the students included in this study were males. The junior college group had a higher percentage of females than did the other three groups. Approximately one-fourth of the junior college technician education students were girls who were enrolled in data processing.

Primarily the technician education programs at the four institutions serve single students. At the metropolitan technical institute, which had the highest percentage of married students, approximately one-fourth of the students were married.

A majority of the male technician education students have not served in the military, however, one-fourth of the male students at the metropolitan technical institute were military veterans. The percentages of veterans attending the other institutions were smaller than the percentage at the metropolitan technical institute.

A substantial majority (approximately 99 per cent) of the technician education students were high school graduates. In addition, approximately 20 per cent of the students had attended college prior to enrolling in the technician education program. The average number of semester hours completed by those students who had previously attended college was roughly equivalent to one year of college work. The two technical institutes served higher percentages of students with prior college study than did the other two institutions.

One-half of the students in the vocational technical school group had graduated from high schools with fewer than 100 in the graduating class. At the other three institutions, a majority of the students had graduated from high schools with 100 or more in the graduating class. The vocational technical school group also had the highest percentage of students who had graduated from high schools with fewer than 50 in the graduating class.

In terms of the percentages of students who had a high school vocational education background, the four groups were very similar. Approximately 45 per cent of the students included in the study had a high school vocational education background.

A substantial majority (approximately 90 per cent) of the students had last attended high schools in Oklahoma. The vocational technical school students came from a larger geographical area than did students at the other three schools. Vocational technical school technician education students came from 54 counties in the state. A majority of the junior college technician education students came from two counties--the county in which the college was located and the state's second most populous county. Approximately two-thirds of the metropolitan technical institute students came from the county in which the institute is located. Students in the on-campus technical institute group came from 34 state counties. Approximately 20 per cent of the students in this group came from out-of-state.

Students included in this study expressed confidence in their ability to finance the training program. A majority of the students, however, were unable to indicate from what sources they expected to pay their educational costs.

A majority of the students indicated they had seriously considered, while in high school, attending the technician education program in which they were enrolled. More than 40 per cent of the students made the decision while in high school to attend the technician education program.

In terms of the percentages of students who had last attended high schools with guidance counselors, the four groups were very similar. Three-fourths of the students had attended high schools with guidance counselors, but less than one-third had ever talked to a counselor about attending the technical program. The students included in this study indicated their first source of information concerning the technician education program was their friends. The percentage (25 per cent) of junior college students who had first heard about the technical program from information mailed to them by the school was higher than those percentages at the other institutions.

Less than 20 per cent of the students included in the study could name another institution in the state which offered a technical program similar to the one in which they were enrolled. The students' primary source of encouragement to attend the school in which they were enrolled was their parents. Approximately 40 per cent of each group, however, indicated that no one had encouraged them to attend the school. These students indicated they had made the decision without encouragement. A higher percentage of the junior college students were encouraged by their parents than were students in the other groups.

In terms of the percentages of students who expected to complete a baccalaureate degree the four groups differed considerably. A majority of the technician education students at the two technical institutes and the junior college and 20 per cent of the vocational technical school students indicated they expected to complete a baccalaureate degree.

Technician education students expressed confidence in their ability to complete the training programs in which they were enrolled. Approximately 90 per cent of all groups indicated they were "confident" that they could complete the program in which they were enrolled.

Approximately one-fourth of the junior college technician education students had not made a decision to enter the occupation for which they were training. This percentage was higher than the percentages for the other three groups. A majority of all groups indicated that they had made the decision to enter the occupation for which they were training at least one month before enrolling in the technical program. Junior college students expressed less interest in the occupations for which they were training than did students in the other three groups. The junior college students expressed less confidence concerning their chances of getting a job in the technical field for which they were training than did students in the other groups.

Differences among the groups were found on each of six factors related to socioeconomic background. Differences among the mean socioeconomic background scores were found to be significantly different at the .01 level. By examining the differences between all pairs of means, two significant differences were found. Mean scores for the technical institute groups were found to be significantly higher than the mean scores for the vocational technical school group. The differences between the means for the vocational technical group and the junior college group approached significance at the .05 level. These data indicate that the vocational technical school students came from lower socioeconomic backgrounds than did students at the other three institutions.

In addition to the socioeconomic index values, five other variables were examined: father's education, mother's education and employment, size of town in which the high school last attended was located, and place of residence while attending high school. The pattern of differences among the groups on these five factors was similar to the pattern of differences among groups on the socioeconomic index values.

Statistically significant differences among the groups were found on the six standardized test scores used as measures of scholastic aptitude. On the three Technical Scholastic Test scores the means of the technical institute groups were similar. The mean Technical Scholastic Test scores for the vocational technical school and the junior college groups were similar. The mean scores for the technical institute groups were significantly higher than the mean scores for the vocational technical school and the junior college groups.

Nelson-Denny Reading Test mean scores for the technical institute groups were similar and significantly higher than the mean scores for the vocational technical school and junior college groups. The mean scores for the junior college group were significantly higher than the vocational technical school group. Mean reading test scores for all groups were lower than the mean scores for grade 13 students.

Findings Related To The Research Questions

Answers to three research questions were sought in this study. In an attempt to provide at least a partial answer to the three questions, data were collected and analyzed from 724 entering technician education students at four post-hgih school institutions. Conclusions regarding the questions are reported in this section.

Research Question 1

Do students entering technician education programs at different types of institutions have different personal and social background characteristics? Based on the findings of this study it is concluded that technician education students entering different types of institutions differ on a number of personal and social background characteristics. Twenty-two variables relative to this question were examined. Differences among the four groups were found on 15 of the 22 variables.

Research Question 2

Do students entering technician education programs at different types of institutions come from different socioeconomic backgrounds? It is concluded that students entering technician education programs at different types of institutions came from different socioeconomic backgrounds. On each of six factors the groups were found to differ. In terms of the variables examined, junior college students and students attending the two technical institutes were similar. The vocational technical school students tend to come from lower socioeconomic backgrounds than did students at the other three schools.

Research Question 3

Do students entering technician education programs at different types of institutions differ on measures of scholastic aptitude? The results of this study tend to indicate that students entering technician education programs at different types of institutions differ in terms of scholastic aptitude. Six standardized test scores were used as measures of scholastic aptitude. On each of the six scores statistically significant differences among the groups were found. On the standardized scores which were related to scholastic ability in technical areas the junior college and vocational technical school students were very much alike. On these scores the students at the two technical institutes were similar to each other, but different from the students in the other two groups. On standardized scores related to reading ability statistically significant differences between the vocational technical school group and each of the other three groups were found. The mean scores for the vocational technical school group were lower than the mean scores for the other three groups. The mean reading test scores for the junior college group tended to be lower than the mean scores for the two technical institute groups.

Conclusions

1. Technician education students do not make choices among the available technician education programs in the state. Twelve post-high school institutions in the state had technician education programs, yet only a small percentage of students included in this study indicated that they knew of other schools in the state which offered a technical program the same as the one in which they were enrolled. An even smaller percentage of the students could name any institution in the state which offered a technical program the same as the one in which they were enrolled.

2. Technician education students tend to express unrealistic educational expectations. All students included in this study were enrolled in programs which are designed with employment objectives rather than college transfer objections. Yet, a majority of the junior college and technical institute students and approximately

one-fifth of the vocational technical school students indicated that they expected to complete a baccalaureate degree. One out of every five students also chose "four-year technology" as the field in which they planned to study for the baccalaureate degree. At the time of this study, "four-year technology" programs were not available in the state.

3. In general, the state's high school guidance systems do not effectively serve prospective technician education students. A majority of the students included in this study indicated that while in high school they had considered attending a technical program. Approximately 45 per cent indicated that the decision to attend the post-high school technician education program was made while still in high school, yet less than one-third of the students had visited with a high school counselor about attending the program. Approximately one-fourth of the students had attended high schools which did not have guidance counselors.

4. Reading skills of technician education students tend to be lower than norms for grade 13 students. The mean scores for all groups on the Nelson-Denny Reading Test were lower than the mean for grade 13 students. In addition, significant differences were found between the groups when reading test scores were analyzed.

Recommendations

1. Technician education programs at different types of institutions served students with different characteristics. It is recommended that school administrators and state officials responsible for planning an expanded program of technician education give

careful consideration to the characteristics of students to be served.

2. A majority of the students included in this study had limited knowledge about the technician education programs offered in the state. It is recommended that educational institutions and state agencies responsible for planning and operating technician education participate in a planned system for disseminating information about technician education opportunities in the state.

3. Effective high school counseling aid is not available to prospective technician education students. It is recommended that the high school guidance systems be assessed to determine the changes which would be necessary if the system is to provide counseling to prospective technician education students. Particular attention should be given to the availability and effectiveness of information concerning post-high school technician education opportunities.

4. Approximately one-fifth of the technician education students expressed the desire to study in educational programs which are not currently available. It is recommended that the feasibility of an open-ended, vertical structure through the baccalaureate level for technician education be investigated.

5. Differences in reading abilities were found among the four groups. It is recommended that school administrators responsible for technician education programs give careful attention to the reading skills of the students to be served. The design of technician education curricula, selection of text material, and instructional methods may be influenced by the reading skills of the students to be served.

6. Differences among technician education students have been identified in this study. It is recommended that the data from this study be used in the design of future studies of technician education students. Research is needed to determine the counseling and guidance potential of the instruments used in the study. Research is also needed to determine what happens to the technician education student while attending the training program and after completion of the program.

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APPENDIX A

INSTITUTIONS

Type	Institution and Location
Junior College	Northeastern Oklahoma Agricultural and Mechanical College Miami, Oklahoma
Vocational Technical School	Oklahoma State University School of Technical Training Okmulgee, Oklahoma
Metropolitan Technical Institute	Oklahoma State University Technical Institute 1900 N. W. Tenth Street Oklahoma City, Oklahoma
On-campus Technical Institute	Oklahoma State University Technical Institute Stillwater, Oklahoma

APPENDIX B

STUDENT INFORMATION FORM I

The student Information Form I was designed to collect data relative to the personal and social background characteristics examined in the study. The design of this instrument was based upon the Resident Student Blank used by Dr. Kenneth B. Hoyt in his "Specialty Oriented Student Research Program" at the State University of Iowa. Permission to use items from the Resident Student Blank was granted by Dr. Hoyt on July 25, 1967.

STUDENT INFORMATION FORM I

Directions: Read each question or statement carefully. Select the answer which is true or most nearly true for you, and indicate this answer by placing an (X) in the appropriate blank. If the question asks you to write your answer, do so in the blank provided. Be sure to answer all questions. Do not hurry. If you have a question about a particular item, feel free to consult with the person in charge. Please answer each question carefully and honestly. Your answers will be treated confidentially.

(Please print)

Name ______________________________
Last First Middle

Date of Birth ______________________________
Month Day Year

School address ______________________________
____
____

Permanent address ______________________________
____
____

Name of high school last attended ______________________________
____

Location of high school last attended ______________________________
City County

____
State

1. Sex
    1. _____ Male
    2. _____ Female

2. Marital Status
    1. _____ Married
    2. _____ Single

3. How many persons other than yourself are dependent on you for their support?

    ____

4. Are you a veteran?
    1. _____ Yes
    2. _____ No

5. Did you live on a farm while attending high school?
    1. _____ Yes
    2. _____ No

6. Was the high school you last attended a public school?
    1. _____ Yes
    2. _____ No

7. What year did you leave or finish high school?
    19______

8. How old are you now?

    ____

9. What is your hobby?
    A.___________________________
    Name hobby

    B. Did this hobby influence your choice of training programs?
        1. _____ Yes
        2. _____ No

10. What is the name of the training program in which you are enrolled?
    1. _____ Aeronautical Technology
    2. _____ Chemical Technology
    3. _____ Construction Technology
    4. _____ Data Processing Technology
    5. _____ Drafting & Design Technology
    6. _____ Electrical Technology
    7. _____ Electronics Technology
    8. _____ Fire Protection Technology
    9. _____ Mechanical Technology
    10. _____ Metals Technology
    11. _____ Petroleum Technology
    12. _____ Radiation Technology
    13. _____ Other ____________________
    Name program

11(A) How much education did you have before entering this program? (Circle the number which represents the highest grade you have completed.)

7 8 9 10 11 12
High School

1 2 3 4
College

____
Other (specify)

(B) If you have completed some college work, how many semester hours have you completed? ____________________

12. Where did you rank in your high school graduating class?
    1. _____ I am not a high school graduate.
    2. _____ Top quarter of high school graduates
    3. _____ Second quarter of high school graduates
    4. _____ Third quarter of high school graduates
    5. _____ Bottom quarter of high school graduates
    6. _____ I do not know my rank in class.

13. About how many students were in your high school graduating class?
   1. _____ I did not graduate from high school.
   2. _____ Less than 50
   3. _____ At least 50 but less than 100
   4. _____ At least 100 but less than 300
   5. _____ At least 300 but less than 500
   6. _____ At least 500

14. What is (or was) your father's occupation?

____

____

15. Circle the number which represents the highest school grade completed by your father.

1 2 3 4 5 6
Grade School

7 8 9
Junior High

10 11 12
High School

1 2 3 4
College

____
More

16. What is (or was) your mother's occupation?

____

____

17. Circle the number which represents the highest school grade completed by your mother.

1 2 3 4 5 6
Grade School

7 8 9
Junior High

10 11 12
High School

1 2 3 4
College

____
More

18. What was your favorite subject in high school?
   1. _____ Mathematics
   2. _____ Science
   3. _____ English
   4. _____ Shop
   5. _____ History & Government
   6. _____ Other ____________________
      Specify

19. Which high school subject did you like least?
   1. _____ Mathematics
   2. _____ Science
   3. _____ English
   4. _____ Shop
   5. _____ History & Government
   6. _____ Other ____________________
      Specify

20. In which high school subject did you make your best grades?
   1. _____ Mathematics
   2. _____ Science
   3. _____ English
   4. _____ Shop
   5. _____ History & Government
   6. _____ Other ____________________
      Specify

21. Which of the following mathematics courses did you complete in high school?
   1. _____ Arithmetic
   2. _____ Algebra I
   3. _____ Geometry
   4. _____ Algebra II
   5. _____ Trigonometry
   6. _____ Other ____________________
      Specify

22. What is the highest education degree you expect to complete?
   1. _____ Certificate of Completion
   2. _____ Associate degree
   3. _____ Bachelor's degree
   4. _____ Master's degree
   5. _____ Doctor's degree

23(A) IF YOU EXPECT TO COMPLETE A BACHELOR'S DEGREE, in what field do you plan to study?

1. _____ 4-year technology
2. _____ Teacher Education
3. _____ Engineering
4. _____ Business
5. _____ Other
6. _____ I do not plan to complete a bachelor's degree.

(B) At which college do you plan to complete this degree? ____________________

____

24. Do you know of other Oklahoma schools which offer the same kind of training program in which you are now enrolled?

1. _____ Yes
2. _____ No

25. IF YOUR ANSWER TO NUMBER 24 IS YES, list the Oklahoma schools which you know have these programs.

____

____

____

____

____

26. Were you enrolled in a vocational course in high school?

1. _____ Yes
2. _____ No

27. IF YOUR ANSWER TO NUMBER 26 IS YES, in which vocational program(s) were you enrolled?

1. _____ Vocational agriculture
2. _____ Distributive education
3. _____ Trade & Industrial

____
(Name of program)

4. _____ Technical ____________________

____
(Name of program)

5. _____ Other ____________________

____
(Name of program)

28 How many years were you enrolled in a vocational program?

1. _____ 1 year
2. _____ 2 years
3. _____ 3 years
4. _____ 4 years

29. What is the size of the town in which you last attended high school?

1. _____ Less than 1,000 people
2. _____ At least 1,000 but less than 5,000 people
3. _____ At least 5,000 but less than 10,000 people
4. _____ At least 10,000 but less than 20,000 people.
5. _____ At least 20,000 but less than 50,000 people
6. _____ At least 50,000 but less than 100,000 people
7. _____ At least 100,000 people

30. How far is the town in which you last attended high school from this town?

1. _____ It is this town.
2. _____ Less than 25 miles
3. _____ At least 25 but less than 50 miles
4. _____ At least 50 but less than 100 miles
5. _____ At least 100 but less than 200 miles
6. _____ At least 200 miles

3

31. How close is the place where you presently live to the school?

1. _____ I live on campus.
2. _____ Less than 1 mile away
3. _____ At least 1 but less than 5 miles away
4. _____ At least 5 but less than 15 miles away
5. _____ At least 15 but less than 30 miles away
6. _____ At least 30 but less than 60 miles away
7. _____ At least 60 miles away

32. How many hours per week do you expect to spend studying outside of class?

1. _____ none
2. _____ 5 hours
3. _____ 10 hours
4. _____ 15 hours
5. _____ 20 hours
6. _____ More than 20 hours

33. How much do you expect the total costs (including everything--fees, books, housing, food, recreation, etc.) for the full length of training time to be?

1. _____ Less than $1,000
2. _____ At least $1,000 but less than $1,500
3. _____ At least $1,500 but less than $2,000
4. _____ At least $2,000 but less than $2,500
5. _____ At least $2,500 but less than $3,000
6. _____ At least $3,000 but less than $4,000
7. _____ At least $4,000

34. Of the total expected costs for the training program, which you checked in question 33, what percent do you expect to pay from each of the following sources?

1. _____ Personal savings
2. _____ Parents or guardian
3. _____ Loans
4. _____ Scholarships
5. _____ Part-time employment during school
6. _____ Summer employment
7. _____ G. I. Bill
8. _____ Other ____________________
Give source

35. How much trouble do you expect to have in getting enough money to make it through this program?

1. _____ No trouble
2. _____ Some trouble, but I'll make it O.K.
3. _____ It will be difficult, but I can do it.
4. _____ It will be so difficult that I may not be able to finish.
5. _____ It will be so difficult that I probably will have to quit before finishing.

36. How did you first find out about this technical program?

1. _____ An ad in a newspaper or magazine
2. _____ Information from the school through the mail
3. _____ Advertisement on TV or radio
4. _____ From a school representative who contacted me
5. _____ From friends of mine
6. _____ From a vocational teacher in high school
7. _____ From a high school teacher other than a vocational teacher
8. _____ From a counselor in high school
9. _____ From somebody in the Vocational Rehabilitation office
10. _____ I heard about it from ____________________.

37. Did you ever visit with a counselor about possibilities of attending this program?
 1. _____ Yes, I visited with a school counselor.
 2. _____ Yes, I visited with a U. S. Employment Service counselor.
 3. _____ Yes, I visited with a Vocational Rehabilitation counselor.
 4. _____ Yes, I visited with a counselor from the Bureau of Indian Affairs.
 5. _____ Yes, I visited with a Veterans Administration counselor.
 6. _____ No-I never visited with a counselor.

38. Was there a guidance counselor in the high school you last attended?
 1. _____ Yes
 2. _____ No

39. IF THERE WAS A COUNSELOR IN THE HIGH SCHOOL YOU LAST ATTENDED, what did he tell you about enrolling in this program?
 1. _____ He never talked to me about this program.
 2. _____ He generally encouraged me to attend this program.
 3. _____ He generally warned me not to enroll in this program.
 4. _____ He told me about this program but neither encouraged me to go nor discouraged me from attending.

40. Did you seriously consider attending this program while you were in high school?
 1. _____ Yes
 2. _____ No

41. Did you make the final decision to attend this program while you were still in high school?
 1. _____ Yes
 2. _____ No

42. Before you came here, did a representative from this school visit with you about this program at some place other than this school?
 1. _____ Yes
 2. _____ No

43. Did you visit this school and look at its facilities before signing up?
 1. _____ Yes
 2. _____ No

44. Who most encouraged you to attend this school?
 1. _____ My parents
 2. _____ Relatives
 3. _____ Friends about my age or not much older
 4. _____ Friends of my family
 5. _____ A previous employer of mine
 6. _____ The people here at the school who operate it or work for it
 7. _____ A teacher or counselor in high school
 8. _____ Somebody in a government agency (such as Rehab, Indian Affairs, VA, etc.)
 9. _____ Nobody encouraged me--I decided all by myself.
 10. _____ Other ____________________
  Specify

45. When did you decide to go into the occupation for which you are now training?

1. _____ I really haven't decided--I'm still exploring.
2. _____ I decided just before coming here to school. (less than 1 month before)
3. _____ I decided more than 1 month but less than six months before.
5. _____ I decided at least one year before coming here.

46. Did you have a full-time paid job other than a summer job JUST BEFORE COMING to this school? (within one month)

1. _____ Yes
2. _____ No

NOTE: If your answer to the preceding question (number 46) was "no", skip to question no. 51

47(A) **IF YOU HAD A FULL-TIME PAID JOB JUST BEFORE COMING TO THIS SCHOOL (OTHER THAN A SUMMER JOB)**, what was this job? ______________________

____

(B) How long did you have this job? ______________________

48. **IF YOU HAD A FULL-TIME PAID JOB JUST BEFORE COMING TO THIS SCHOOL (OTHER THAN A SUMMER JOB)**, how interested were you in that job?

1. _____ Very interested--I hesitated to leave it.
2. _____ Interested--I like it better than most things I could be doing.
3. _____ Mildly interested--It was O.K. but no more so than many other jobs I might have had.
4. _____ Little interested--I knew other things I would rather be doing.
5. _____ Not interested--I didn't like it and was looking for some way to leave it.

49. **IF YOU HAD A FULL-TIME PAID JOB JUST BEFORE COMING TO THIS SCHOOL.(OTHER THAN A SUMMER JOB)**, about how much money did you make a week?

1. _____ Less than $50 a week
2. _____ At least $50 but less than $75 a week
3. _____ At least $75 but less than $100 a week
4. _____ At least $100 but less than $150 a week
5. _____ At least $150 but less than $200 a week
6. _____ At least $200 a week

50. **IF YOU HAD A FULL-TIME PAID JOB JUST BEFORE COMING TO THIS SCHOOL (OTHER THAN A SUMMER JOB)**, how closely related was it to the occupation for which you are now training?

1. _____ Very close-when I finish my training, I may go back to it.
2. _____ Close-the biggest difference is this training will let me work at a higher level.
3. _____ Somewhat related-there were some things similar to the occupation for which I am now training.
4. _____ Unrelated-it was an entirely different occupation than the one for which I am training.

51. Did you have a part-time or full-time paid job while going to high school?
    1. _____ Yes
    2. _____ No

52. What do you feel your chances are of getting a job in the field for which you are now training when you finish this training program?
    1. _____ Excellent-I already know where I will be working.
    2. _____ Good-this school places their graduates with little or no trouble.
    3. _____ Fair-it seems some graduates get jobs but others do not.
    4. _____ Poor-I guess it is strictly up to me to find my own job.
    5. _____ I don't know-I have never considered it.

53. Could you get a job in this field without attending a training program such as this?
    1. _____ Yes
    2. _____ No

54. How interested are you in the occupation for which you are now training?
    1. _____ Very interested-it is exactly what I want to do for a living.
    2. _____ Interested-I think I will like it more than most things I might do.
    3. _____ Mildly interested-I think it will be O.K but no more so than many other things.
    4. _____ Little interested-there are other things I would rather be learning.
    5. _____ Not interested-I don't like it but there isn't much else for me to do now.

55. How confident are you that you can complete the program in which you are enrolled?
    1. _____ Very confident-I am sure I will finish.
    2. _____ Confident-I think I will probably finish.
    3. _____ Unsure-I may or may not finish depending on what happens.
    4. _____ Doubtful-I probably will not finish.
    5. _____ Very doubtful-I plan to quit as soon as I can find a good job.

56. Upon completion of this training program, how much money per month do you think your first job will pay?
    1. _____ $300 to $399 per month
    2. _____ $400 to $499 per month
    3. _____ $500 to $599 per month
    4. _____ $600 to $699 per month
    5. _____ Over $700 per month
    6. _____ I have no idea.

57. At the end of five years of employment how much money do you think you will make per month?
    1. _____ $400 to $499 per month
    2. _____ $500 to $599 per month
    3. _____ $600 to $699 per month
    4. _____ $700 to $799 per month
    5. _____ Over $800 per month

58. Upon completion of this program, what do you plan to do?
   1. _____ Seek employment in a technical occupation for which I am training.
   2. _____ Continue my formal education on a full-time basis
   3. _____ Enter military service
   4. _____ Other

59(A) If you expect to seek employment upon completion of this program, where do you prefer to work?
   1. _____ In Oklahoma
   2. _____ In another state
   3. _____ I have no preference.

(B) Where do you expect to find your best opportunity for employment?
   1. _____ In Oklahoma
   2. _____ In another state
   3. _____ I don't know

APPENDIX C

STANDARDIZED TEST SCORES BY INSTITUTION AND BY TECHNOLOGY

Variable[a] No.	Mean	Standard Deviation	n	Maximum	Minimum	Range
	Junior College Data Processing					
1	15.62	4.70	86	26	3	23
2	27.75	10.28	120	56	7	49
3	36.02	11.33	120	62	10	52
4	63.77	19.79	120	116	21	95
5	32.11	12.11	120	67	8	59
6	43.23	12.16	120	67	13	54
7	75.35	21.29	120	134	25	109
	Junior College Drafting and Design					
1	17.14	5.19	27	26	7	19
2	27.26	12.18	34	50	6	44
3	35.23	13.25	34	64	8	56
4	62.50	24.47	34	110	21	89
5	35.58	11.46	34	57	13	44
6	43.58	12.19	34	62	24	38
7	79.17	22.31	34	119	43	76
	Junior College Electronics					
1	17.18	3.86	27	24	8	16
2	30.06	10.36	33	48	11	37
3	36.00	10.78	33	56	16	40
4	66.06	19.50	33	102	27	75
5	48.54	10.55	33	67	21	46
6	46.84	12.02	33	69	22	47
7	95.39	20.80	33	130	46	84

APPENDIX C (continued)

Variable[a] No.	Mean	Standard Deviation	n	Maximum	Minimum	Range
	Junior College Mechanical					
1	14.16	4.63	36	25	6	19
2	19.27	7.85	36	38	4	34
3	27.94	13.13	36	56	8	48
4	47.22	19.41	36	94	17	77
5	35.25	12.16	36	57	8	49
6	38.02	13.40	36	62	7	55
7	73.27	23.54	36	118	15	103
	Vocational Technical School Data Processing					
1	13.55	5.22	9	24	7	17
2	22.67	11.26	65	60	6	54
3	33.76	13.33	65	64	14	50
4	56.44	22.97	65	116	20	96
5	32.29	10.96	65	58	10	48
6	41.81	11.65	65	68	16	52
7	74.10	20.54	65	126	30	96
	Vocational Technical School Drafting and Design					
1	15.23	3.61	21	26	7	19
2	21.46	9.04	95	56	5	51
3	28.73	11.91	95	60	4	56
4	50.20	19.49	95	108	12	96
5	35.43	10.18	95	65	12	53
6	40.78	11.15	95	65	14	51
7	76.22	19.70	95	123	26	97
	Vocational Technical School Electronics					
1	16.55	3.64	9	22	9	13
2	24.69	8.41	95	45	10	35
3	31.24	11.99	95	58	2	56
4	55.83	18.22	95	102	17	85
5	42.84	11.85	95	70	19	51
6	43.43	9.98	95	68	22	46
7	86.27	19.37	95	137	44	93

APPENDIX C (continued)

Variable[a] No.	Mean	Standard Deviation	n	Maximum	Minimum	Range
	Metropolitan Technical Institute Data Processing					
1	17.17	5.06	17	27	10	17
2	29.15	13.68	20	60	8	52
3	38.90	9.70	20	56	16	40
4	68.05	19.43	20	102	38	64
5	41.31	13.50	29	69	15	54
6	50.31	10.82	29	70	31	39
7	91.62	22.38	29	139	53	86
	Metropolitan Technical Institute Drafting and Design					
1	14.96	4.80	28	23	6	17
2	29.30	14.32	26	66	3	63
3	32.26	14.20	26	66	10	56
4	61.19	26.03	26	122	13	109
5	34.63	10.19	36	55	19	36
6	45.55	13.60	36	72	15	57
7	80.19	22.09	36	127	36	91
	Metropolitan Technical Institute Electronics					
1	19.12	4.42	25	29	9	20
2	31.16	13.18	24	68	12	56
3	38.16	11.98	24	60	16	44
4	69.33	24.30	24	128	28	100
5	51.00	12.08	34	72	29	43
6	54.08	10.29	34	74	28	46
7	105.08	20.55	34	144	58	86
	On-campus Technical Institute Aeronautical					
1	18.00	4.03	17	26	10	16
2	28.58	13.70	17	67	13	54
3	39.00	11.13	17	64	22	42
4	67.58	23.46	17	131	37	94
5	44.52	12.61	23	67	25	42
6	47.60	11.36	23	68	24	44
7	92.13	21.99	23	127	51	76

APPENDIX C (continued)

Variable[a] No.	Mean	Standard Deviation	n	Maximum	Minimum	Range
	On-campus Technical Institute Construction					
1	17.44	5.91	9	24	6	18
2	32.55	13.08	9	48	17	31
3	33.88	10.03	9	52	20	32
4	66.44	21.70	9	95	37	58
5	40.09	9.63	11	55	26	29
6	47.81	10.26	11	65	30	35
7	87.90	14.90	11	106	56	50
	On-campus Technical Institute Drafting and Design					
1	16.92	4.37	14	26	11	15
2	25.64	7.08	14	36	14	22
3	36.85	7.09	14	50	26	24
4	62.50	12.91	14	86	46	40
5	35.68	13.44	16	56	13	43
6	47.12	10.53	16	69	29	40
7	82.81	22.09	16	118	49	69
	On-campus Technical Institute Electronics					
1	19.52	3.90	23	26	12	14
2	30.00	10.59	22	57	14	43
3	37.81	10.95	22	54	14	40
4	67.54	19.19	22	103	36	67
5	53.80	10.03	26	71	37	34
6	54.96	8.86	26	71	33	38
7	108.76	17.49	26	137	75	62
	On-campus Technical Institute Fire Protection					
1	19.00	2.87	8	22	14	8
2	33.12	5.30	8	44	25	19
3	42.75	11.05	8	62	28	34
4	75.87	15.20	8	106	59	47
5	42.61	11.70	13	70	27	43
6	53.69	11.00	13	71	35	36
7	96.30	20.82	13	141	62	79

APPENDIX C (continued)

Variable^a No.	Mean	Standard Deviation	n	Maximum	Minimum	Range
	On-campus Technical Institute Mechanical					
1	16.76	3.97	17	26	10	16
2	26.41	9.96	17	46	9	37
3	33.94	9.69	17	54	16	38
4	61.05	18.69	17	101	25	76
5	46.90	12.26	22	69	23	46
6	48.63	11.06	22	69	28	41
7	95.54	22.10	22	136	56	80
	On-campus Technical Institute Metals					
1	15.40	5.27	5	22	10	12
2	18.00	6.92	5	28	9	19
3	29.60	11.43	5	48	18	30
4	47.60	18.07	5	76	27	49
5	36.57	10.69	7	51	24	27
6	47.00	8.52	7	60	38	22
7	83.57	18.50	7	109	67	42
	On-campus Technical Institute Petroleum					
1	18.85	4.48	7	25	11	14
2	29.14	12.94	7	52	16	36
3	38.28	13.87	7	54	20	34
4	67.42	25.55	7	102	36	66
5	41.75	7.77	8	54	34	20
6	52.25	8.66	8	63	35	28
7	94.00	15.06	8	117	72	45

APPENDIX C (continued)

Variable[a] No.	On-campus Technical Institute Radiation					
	Mean	Standard Deviation	n	Maximum	Minimum	Range
1	22.00	3.66	15	27	13	14
2	34.64	8.89	14	53	20	33
3	43.42	8.57	14	58	32	26
4	78.07	15.80	14	103	52	51
5	47.37	10.93	16	65	29	36
6	57.62	6.32	16	65	43	22
7	105.00	15.57	16	125	83	42

a. 1--American College Testing Program (ACT) Composite
2--Nelson-Denny Reading Test Vocabulary
3--Nelson-Denny Reading Test Comprehension
4--Nelson-Denny Reading Test Total
5--Technical Scholastic Test Technical
6--Technical Scholastic Test Scholastic
7--Technical Scholastic Test Total